

SEQUENCE LISTING

JC541 U.S. PRO
10/037270



<110> Tang, Y. Tom
Liu, Chenghua
Asundi, Vinod
Zhang, Jie
Ren, Feiyan
Chen, Rui-hong
Zhao, Qing A.
Wehrman, Tom
Xue, Aidong J.
Yang, Yonghong
Wang, Jian-Rui
Zhou, Ping
Ma, Yunqing
Wang, Dunrui
Wang, Zhiwei
Tillinghast, John
Drmanac, Radoje T.

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Gly Ala Ala Gly Gly Gly Gly Ser Ile Gly Ala Ser Lys *	
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aatggggcag gggaagggca cccccctgc ccatgcatgg tagcccactg ggtggtttct	1550
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ccacctgggt gccagttaca ggtgtttcca gagaccatag aaatgtgtt tcctgagagt	3170

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<213> Homo sapiens

<220>
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Met Ala Lys Pro Gly Gly Pro Gly Glu Arg Arg
1 5
cgc atg gag aac ttc cgt aag gtg cgc tcc gaa gag gcg cca cgg gga 218
Arg Met Glu Asn Phe Arg Lys Val Arg Ser Glu Glu Ala Pro Arg Gly
12 17 22 27
tgc ggg gcc gag gga ggc ggc ccg ggc tcc ggc ccg ttc gca gac ctg 266
Cys Gly Ala Glu Gly Gly Gly Pro Gly Ser Gly Pro Phe Ala Asp Leu
28 33 38 43
gcg ccg ggc gcg gtg cac atg cgg gtc aag gaa ggc agc aag atc cgg 314
Ala Pro Gly Ala Val His Met Arg Val Lys Glu Gly Ser Lys Ile Arg
44 49 54 59
aac ctg atg gcc ttc gcc acc gcc agc atg gcg cag cca gcc acg cgc 362
Asn Leu Met Ala Phe Ala Thr Ala Ser Met Ala Gln Pro Ala Thr Arg
60 65 70 75
gcc atc gtc ttc agc ggc tgc ggc cgg gcc acc acc aaa acc gtc acg 410
Ala Ile Val Phe Ser Gly Cys Gly Arg Ala Thr Thr Lys Thr Val Thr
76 81 86 91
tgc gcc gag atc ctc aag cgc cgc ctg gcg ggc ctg cac cag gtc acg 458
Cys Ala Glu Ile Leu Lys Arg Arg Leu Ala Gly Leu His Gln Val Thr
92 97 102 107
cgg ctg cgc tac cgg agc gta cgc gag gtg tgg cag agc ctc ccg cct 506
Arg Leu Arg Tyr Arg Ser Val Arg Glu Val Trp Gln Ser Leu Pro Pro
108 113 118 123
ggg ccc acg cag ggt cag acg cct ggc gag ccg gcc gct agt ctc agc 554
Gly Pro Thr Gln Gly Gln Thr Pro Gly Glu Pro Ala Ala Ser Leu Ser
124 129 134 139

gta ctt aag aac gtg ccc ggc ctc gcc atc cta ctt tcc aag gac gcg	602
Val Leu Lys Asn Val Pro Gly Leu Ala Ile Leu Leu Ser Lys Asp Ala	
140 145 150 155	
ctg gat ccg cga cag ccc ggc tac cag ccc ccg aat ccc cat cct ggt	650
Leu Asp Pro Arg Gln Pro Gly Tyr Gln Pro Pro Asn Pro His Pro Gly	
156 161 166 171	
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Pro Ser Ser Pro Pro Ala Ala Pro Ala Ser Lys Arg Ser Leu Gly Glu	
172 177 182 187	
ccc gca gct gga gaa ggc tcc gcg aag cga tcg caa ccc gag cca ggg	746
Pro Ala Ala Gly Glu Gly Ser Ala Lys Arg Ser Gln Pro Glu Pro Gly	
188 193 198 203	
gtt gcg gac gag gat cag acg gcc tga aactc cggactgtgg gccacctagt	798
Val Ala Asp Glu Asp Gln Thr Ala *	
204 209	
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 <213> Homo sapiens

<220>
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aaaaacagtg gagaaggctg ggctggacca cgggaaagag ataggaaaac ggatacgaat	180
gtaaggcaca gagttggctc ggcgtccctg gcagttagga agacaggtcc ctggaggggc	240
cttggcgggt ctccgctcgc gggagttccg cgggtgtcttt cccagtgcta tctgcaggct	300
ggccagcttc ctctgcgctc cggaaagctg cggcccagcg cggactagtg aggacctcca	360
cagctcctga cattgccagg agtccctgtcg gcgttttctc ccagcctccg cc atg	415
	Met
	1
ccg gcg gtg ctg ggt ttt gaa ggc agc gcc aat aag att ggc gtg ggc	463
Pro Ala Val Leu Gly Phe Glu Gly Ser Ala Asn Lys Ile Gly Val Gly	
2 7 12 17	
gtg gtg cgg gat ggc aag gtg ctg gcg aac ccg cgg cgg act tac gtc	511
Val Val Arg Asp Gly Lys Val Leu Ala Asn Pro Arg Arg Thr Tyr Val	
18 23 28 33	
acg cct cct ggc aca gga ttc ctt cca ggt gat aca gcc agg cat cac	559
Thr Pro Pro Gly Thr Gly Phe Leu Pro Gly Asp Thr Ala Arg His His	
34 39 44 49	
cga gct gtt atc cta gac ctg ctg cag gag gca cta aca gag tct gga	607
Arg Ala Val Ile Leu Asp Leu Leu Gln Glu Ala Leu Thr Glu Ser Gly	
50 55 60 65	
tta acc tcc cag gat atc gac tgc att gca tac acc aag ggc cct ggc	655
Leu Thr Ser Gln Asp Ile Asp Cys Ile Ala Tyr Thr Lys Gly Pro Gly	
66 71 76 81	
atg ggt gcc cca ctg gtt tct gtg gct gtt gtg gcc cgt act gtg gcc	703
Met Gly Ala Pro Leu Val Ser Val Ala Val Val Ala Arg Thr Val Ala	
82 87 92 97	
cag ctg tgg aat aag cca ttg gtg ggt gtg aac cac tgt ata ggc cac	751

Gln	Leu	Trp	Asn	Lys	Pro	Leu	Val	Gly	Val	Asn	His	Cys	Ile	Gly	His	
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Ile	Glu	Met	Gly	Arg	Leu	Ile	Thr	Gly	Ala	Thr	Ser	Pro	Thr	Val	Leu	
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Tyr	Val	Ser	Gly	Gly	Asn	Thr	Gln	Val	Ile	Ala	Tyr	Ser	Glu	His	Arg	
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Tyr	Arg	Ile	Phe	Gly	Glu	Thr	Ile	Asp	Ile	Ala	Val	Gly	Asn	Cys	Leu	
146					151					156					161	
gat	cgt	ttt	gct	cga	gtg	ctg	aag	att	tct	aac	gac	cca	agt	cca	gga	943
Asp	Arg	Phe	Ala	Arg	Val	Leu	Lys	Ile	Ser	Asn	Asp	Pro	Ser	Pro	Gly	
162					167					172					177	
tac	aac	att	gaa	cag	atg	gca	aag	cga	ggc	aag	aag	ctg	ggt	gag	ctg	991
Tyr	Asn	Ile	Glu	Gln	Met	Ala	Lys	Arg	Gly	Lys	Lys	Leu	Val	Glu	Leu	
178					183					188					193	
cca	tac	act	gta	aag	ggg	atg	gac	gtc	tca	ttc	tca	ggg	atc	ctg	tct	1039
Pro	Tyr	Thr	Val	Lys	Gly	Met	Asp	Val	Ser	Phe	Ser	Gly	Ile	Leu	Ser	
194					199					204					209	
ttc	att	gag	gat	gta	gcc	cat	cgg	atg	ctg	gcc	aca	ggc	gag	tgt	act	1087
Phe	Ile	Glu	Asp	Val	Ala	His	Arg	Met	Leu	Ala	Thr	Gly	Glu	Cys	Thr	
210					215					220					225	
cct	gag	gat	ctg	tgt	ttc	tcc	ctg	cag	gaa	act	gtg	ttt	gca	atg	ctg	1135
Pro	Glu	Asp	Leu	Cys	Phe	Ser	Leu	Gln	Glu	Thr	Val	Phe	Ala	Met	Leu	
226					231					236					241	
gta	gag	atc	aca	gag	cga	gcc	atg	gca	cat	tgt	ggc	tcc	cag	gag	gcc	1183
Val	Glu	Ile	Thr	Glu	Arg	Ala	Met	Ala	His	Cys	Gly	Ser	Gln	Glu	Ala	
242					247					252					257	
ctc	att	gtg	gga	gga	gtg	ggg	tgt	aat	gtg	agg	cta	cag	gag	atg	atg	1231
Leu	Ile	Val	Gly	Gly	Val	Gly	Cys	Asn	Val	Arg	Leu	Gln	Glu	Met	Met	
258					263					268					273	
gca	aca	atg	tgc	cag	gaa	cgt	gga	gcc	cgg	ctt	ttt	gct	aca	gat	gag	1279
Ala	Thr	Met	Cys	Gln	Glu	Arg	Gly	Ala	Arg	Leu	Phe	Ala	Thr	Asp	Glu	
274					279					284					289	
aga	ttc	tgt	att	gac	aat	gga	gcg	atg	ata	gcc	cag	gct	ggc	tgg	gag	1327
Arg	Phe	Cys	Ile	Asp	Asn	Gly	Ala	Met	Ile	Ala	Gln	Ala	Gly	Trp	Glu	
290					295					300					305	
atg	ttt	cgg	gct	gga	cac	agg	acc	cca	ctc	agt	gat	tct	ggg	gtt	aca	1375
Met	Phe	Arg	Ala	Gly	His	Arg	Thr	Pro	Leu	Ser	Asp	Ser	Gly	Val	Thr	
306					311					316					321	
cag	agg	tat	cgg	aca	gat	gaa	gta	gag	gtg	acc	tgg	agg	gac	taa	taa	1423
Gln	Arg	Tyr	Arg	Thr	Asp	Glu	Val	Glu	Val	Thr	Trp	Arg	Asp	*		

322

327

332

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<211> 1920

<212> DNA

<213> Homo sapiens

<220>

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<222> (120) .. (1394)

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 atg gag gat ttg gag gaa gat gta agg ttt att gtg gat gag acc ttg 167
 Met Glu Asp Leu Glu Glu Asp Val Arg Phe Ile Val Asp Glu Thr Leu
 1 5 10 15
 gac ttt ggg ggg ctg tca cca tct gac agc cgt gag gag gaa gac ata 215
 Asp Phe Gly Gly Leu Ser Pro Ser Asp Ser Arg Glu Glu Glu Asp Ile
 17 22 27 32
 aca gtg ttg gtg act cca gag aaa cca ctt cga cgg tgc ctc tcc cac 263
 Thr Val Leu Val Thr Pro Glu Lys Pro Leu Arg Arg Cys Leu Ser His
 33 38 43 48
 cga agt gac cca aat gca gtg gca cct gcc ccc cag ggt gtg agg ctc 311
 Arg Ser Asp Pro Asn Ala Val Ala Pro Ala Pro Gln Gly Val Arg Leu
 49 54 59 64
 agc cta tgc ccc ctc agt cca gag aag ctg gag gag atc ctc gat gag 359
 Ser Leu Cys Pro Leu Ser Pro Glu Lys Leu Glu Glu Ile Leu Asp Glu
 65 70 75 80
 gcc aac cgg ctg gcc gct cag ctg gag cag tgt gcc ctg cag gat cgg 407
 Ala Asn Arg Leu Ala Ala Gln Leu Glu Gln Cys Ala Leu Gln Asp Arg
 81 86 91 96
 gag agc gca ggc gag ggc ctg ggg cct cgc cga gtg aag ccc agt cct 455
 Glu Ser Ala Gly Glu Gly Leu Gly Pro Arg Arg Val Lys Pro Ser Pro
 97 102 107 112
 cgg cgg gag acc ttt gtg ctg aag gat agt cct gtc cga gac ctg ctg 503
 Arg Arg Glu Thr Phe Val Leu Lys Asp Ser Pro Val Arg Asp Leu Leu
 113 118 123 128

ccc act gtg aac tct ttg acg cgg agc acc ccc tcc cca agc agc ctg	551
Pro Thr Val Asn Ser Leu Thr Arg Ser Thr Pro Ser Pro Ser Ser Leu	
129 134 139 144	
acg cct cga ctc cgg agt aat gat agg aag ggg tca gtc agg gct ctc	599
Thr Pro Arg Leu Arg Ser Asn Asp Arg Lys Gly Ser Val Arg Ala Leu	
145 150 155 160	
cgg gct aca tct gga aag agg ccc tcc aac atg aag agg gag tca ccc	647
Arg Ala Thr Ser Gly Lys Arg Pro Ser Asn Met Lys Arg Glu Ser Pro	
161 166 171 176	
act tgc aat ctg ttc cct gca tcc aaa agc cca gca tct tct cct ctt	695
Thr Cys Asn Leu Phe Pro Ala Ser Lys Ser Pro Ala Ser Ser Pro Leu	
177 182 187 192	
acc cga tgc act ccc cca gtc cgg ggg aga gcc ggg ccc agt ggg aga	743
Thr Arg Ser Thr Pro Pro Val Arg Gly Arg Ala Gly Pro Ser Gly Arg	
193 198 203 208	
gca gca gcc agt gag gag acc aga gca gcc aag ttg cgg gga gca gct	791
Ala Ala Ala Ser Glu Glu Thr Arg Ala Ala Lys Leu Arg Gly Ala Ala	
209 214 219 224	
gct aaa tct tcc agt caa ctg ccc att ccc tgc gcc atc ccc agg cct	839
Ala Lys Ser Ser Ser Gln Leu Pro Ile Pro Ser Ala Ile Pro Arg Pro	
225 230 235 240	
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Ala Ser Arg Met Pro Leu Thr Ser Arg Ser Val Pro Pro Gly Arg Gly	
241 246 251 256	
gcc cta cct ccg gat tct ctg tca act cga aaa ggg ctt cca aga cca	935
Ala Leu Pro Pro Asp Ser Leu Ser Thr Arg Lys Gly Leu Pro Arg Pro	
257 262 267 272	
agc act gca gga cac aga gtg cgg gaa agt gga cac aag gtt cct gtt	983
Ser Thr Ala Gly His Arg Val Arg Glu Ser Gly His Lys Val Pro Val	
273 278 283 288	
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Ser Gln Arg Leu Asn Leu Pro Val Met Gly Ala Thr Arg Ser Asn Leu	
289 294 299 304	
cag ccc ccc agg aaa gtg gca gtc cca gga cct acc agg tca gtc tgg	1079
Gln Pro Pro Arg Lys Val Ala Val Pro Gly Pro Thr Arg Ser Val Trp	
305 310 315 320	
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Ser Ser Leu Ala His Pro Val Ser Leu Pro Arg His His Leu Gly Phe	
321 326 331 336	
caa gct gtt atg cac atc agc cct gaa ttt tgt atg gaa aga tgg aga	1175
Gln Ala Val Met His Ile Ser Pro Glu Phe Cys Met Glu Arg Trp Arg	
337 342 347 352	

gag gag ggg agc ctg ggg cag ggg aag ggg gat ccc att tct tcc cac	1223
Glu Glu Gly Ser Leu Gly Gln Gly Lys Gly Asp Pro Ile Ser Ser His	
353 358 363 368	
cct gag gag ctt gaa ttc tgc tgg gtg aca aat ggg ctt gag gaa gaa	1271
Pro Glu Glu Leu Glu Phe Cys Trp Val Thr Asn Gly Leu Glu Glu Glu	
369 374 379 384	
ggg cat ttt aaa gca gtt att cct tct att tct tta ggt aaa gag atc	1319
Gly His Phe Lys Ala Val Ile Pro Ser Ile Ser Leu Gly Lys Glu Ile	
385 390 395 400	
agg aca gca agc aag act tca gta gca aac act aca gtc agg tac ctg	1367
Arg Thr Ala Ser Lys Thr Ser Val Ala Asn Thr Thr Val Arg Tyr Leu	
401 406 411 416	
gac tgc cct cta ccc agc aga ccc tga ctcca gcagattctg gccagggac	1419
Asp Ser Pro Leu Pro Ser Arg Pro *	
417 422	
aggaggaaga gatgccacca gggctgggtct cccaggagta gagaccatgg gaaatggggt	1479
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<220>
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cctgaggggtc gtggcgagtt cgcgagagcgt gggaaggagc ggaccctgct ctccccgggc	300
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Met Ala Thr Ala Glu Arg Arg Ala Leu Gly Ile Gly Phe Gln	
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tgg ctc tct ttg gcc act ctg gtg ctc atc tgc gcc ggg caa ggg gga	398
Trp Leu Ser Leu Ala Thr Leu Val Leu Ile Cys Ala Gly Gln Gly Gly	
15 20 25 30	
cgc agg gag gat ggg ggt cca gcc tgc tac ggc gga ttt gac ctg tac	446
Arg Arg Glu Asp Gly Gly Pro Ala Cys Tyr Gly Gly Phe Asp Leu Tyr	
31 36 41 46	
ttc att ttg gac aaa tca gga agt gtg ctg cac cac tgg aat gaa atc	494
Phe Ile Leu Asp Lys Ser Gly Ser Val Leu His His Trp Asn Glu Ile	
47 52 57 62	
tat tac ttt gtg gaa cag ttg gct cac aaa ttc atc agc cca cag ttg	542
Tyr Tyr Phe Val Glu Gln Leu Ala His Lys Phe Ile Ser Pro Gln Leu	
63 68 73 78	
aga atg tcc ttt att gtt ttc tcc acc cga gga aca acc tta atg aaa	590
Arg Met Ser Phe Ile Val Phe Ser Thr Arg Gly Thr Thr Leu Met Lys	
79 84 89 94	
ctg aca gaa gac aga gaa caa atc cgt caa ggc cta gaa gaa ctc cag	638
Leu Thr Glu Asp Arg Glu Gln Ile Arg Gln Gly Leu Glu Glu Leu Gln	
95 100 105 110	
aaa gtt ctg cca gga gga gac act tac atg cat gaa gga ttt gaa agg	686
Lys Val Leu Pro Gly Gly Asp Thr Tyr Met His Glu Gly Phe Glu Arg	
111 116 121 126	
gcc agt gag cag att tat tat gaa aac aga caa ggg tac agg aca gcc	734
Ala Ser Glu Gln Ile Tyr Tyr Glu Asn Arg Gln Gly Tyr Arg Thr Ala	
127 132 137 142	
agc gtc atc att gct ttg act gat gga gaa ctc cat gaa gat ctc ttt	782
Ser Val Ile Ile Ala Leu Thr Asp Gly Glu Leu His Glu Asp Leu Phe	
143 148 153 158	
ttc tat tca gag agg gag gct aat agg tct cga gat ctt ggt gca att	830
Phe Tyr Ser Glu Arg Glu Ala Asn Arg Ser Arg Asp Leu Gly Ala Ile	
159 164 169 174	
gtt tac tgt gtt ggt gtg aaa gat ttc aat gag aca cag ctg gcc cgg	878
Val Tyr Cys Val Gly Val Lys Asp Phe Asn Glu Thr Gln Leu Ala Arg	
175 180 185 190	
att gcg gac agt aag gat cat gtg ttt ccc gtg aat gac ggc ttt cag	926
Ile Ala Asp Ser Lys Asp His Val Phe Pro Val Asn Asp Gly Phe Gln	
191 196 201 206	
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207					212					217					222	
att	cta	gca	gct	gaa	cca	tcc	acc	ata	tgt	gca	gga	gag	tca	ttt	caa	1022
Ile	Leu	Ala	Ala	Glu	Pro	Ser	Thr	Ile	Cys	Ala	Gly	Glu	Ser	Phe	Gln	
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Val	Val	Val	Arg	Gly	Asn	Gly	Phe	Arg	His	Ala	Arg	Asn	Val	Asp	Arg	
239					244					249					254	
gtc	ctc	tgc	agc	ttc	aag	atc	aat	gac	tcg	gtc	aca	ctc	agt	aag	tcc	1118
Val	Leu	Cys	Ser	Phe	Lys	Ile	Asn	Asp	Ser	Val	Thr	Leu	Ser	Lys	Ser	
255					260					265					270	
ttg	cag	agt	cca	tgg	gtt	tct	tcg	aca	agt	ggc	ttc	aag	gaa	ggg	aat	1166
Leu	Gln	Ser	Pro	Trp	Val	Ser	Ser	Thr	Ser	Gly	Phe	Lys	Glu	Gly	Asn	
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Ser	His	Pro	Cys	Leu	Pro	Ala	Arg	Pro	His	Thr	*					
287					292					297						
agtc	ttat	ttt	gct	gga	aaga	cccc	cag	caa	gggc	atag	tg	agcc	cttaca	gtgg	ttccag	1276
tcag	aaaagg	cacc	actt	gg	gtggg	cacag	cccc	atgg	gt	ccaact	tg	gtaag	cagag			1336
caagg	ctgga	cttg	agtccc	cg	tctccac	aaaac	acaga	gccaca	agcc	ccag	ccctgc					1396
agcag	ccctc	cgga	agcagc	gggg	cactgg	tttc	cttg	tc	ccctg	ccatc	tacc	gagtgg				1456
ctcact	tctca	ggtggg	agtg	ctgg	tggtg	ttaatt	tagga	ctgc	agaaac	atgagt	tctcc					1516
ttaac	aaagt	attggg	actc	ttaagg	gtaa	gtgtg	aaaaa	ggaat	ggtct	aatgc	atta					1576
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148					153					158					163	
gag	cca	gga	ttc	ctg	gct	cct	gga	gcc	cgt	tct	aac	atc	cag	tac	cgc	1123
Glu	Pro	Gly	Phe	Leu	Ala	Pro	Gly	Ala	Arg	Ser	Asn	Ile	Gln	Tyr	Arg	
164					169					174					179	
agc	ctg	ccc	cgg	cca	gcc	aag	tca	agt	tct	atg	agc	gtg	acc	ggc	ggg	1171
Ser	Leu	Pro	Arg	Pro	Ala	Lys	Ser	Ser	Ser	Met	Ser	Val	Thr	Gly	Gly	
180					185					190					195	
cgg	ggt	gga	cct	cgc	cct	gtg	agc	agc	agc	att	gac	ccc	agt	ctc	ctc	1219
Arg	Gly	Gly	Pro	Arg	Pro	Val	Ser	Ser	Ser	Ile	Asp	Pro	Ser	Leu	Leu	
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agc	acc	aag	cag	gga	ggc	ctt	acg	cct	tcc	aga	ctg	aag	gag	cct	acc	1267
Ser	Thr	Lys	Gln	Gly	Gly	Leu	Thr	Pro	Ser	Arg	Leu	Lys	Glu	Pro	Thr	
212					217					222					227	
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Lys	Val	Ala	Ser	Gly	Arg	Thr	Thr	Pro	Ala	Pro	Val	Asn	Gln	Thr	Asp	
228					233					238					243	
cgg	gaa	aag	gag	aag	gcc	aaa	gcc	aag	gca	gtg	gcc	ttg	gac	tca	gac	1363
Arg	Glu	Lys	Glu	Lys	Ala	Lys	Ala	Lys	Ala	Val	Ala	Leu	Asp	Ser	Asp	
244					249					254					259	
aac	atc	tcc	ttg	aag	agt	att	ggc	tcc	cca	gaa	agt	act	ccc	aag	aac	1411
Asn	Ile	Ser	Leu	Lys	Ser	Ile	Gly	Ser	Pro	Glu	Ser	Thr	Pro	Lys	Asn	
260					265					270					275	
caa	gca	agc	cac	ccc	aca	gcc	acc	aag	ctg	gca	gag	ctg	cca	cca	acc	1459
Gln	Ala	Ser	His	Pro	Thr	Ala	Thr	Lys	Leu	Ala	Glu	Leu	Pro	Pro	Thr	
276					281					286					291	
cct	ctc	agg	gcc	aca	gcg	aag	agc	ttt	gtc	aaa	cca	ccc	tca	cta	gcc	1507
Pro	Leu	Arg	Ala	Thr	Ala	Lys	Ser	Phe	Val	Lys	Pro	Pro	Ser	Leu	Ala	
292					297					302					307	
aat	ctt	gac	aag	gtc	aac	tcc	aac	agt	ctg	gat	cta	cca	tca	tcc	agt	1555
Asn	Leu	Asp	Lys	Val	Asn	Ser	Asn	Ser	Leu	Asp	Leu	Pro	Ser	Ser	Ser	
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gat	acc	acc	cat	gct	tca	aag	gtc	cca	gat	ctg	cat	gct	aca	agc	tca	1603
Asp	Thr	Thr	His	Ala	Ser	Lys	Val	Pro	Asp	Leu	His	Ala	Thr	Ser	Ser	
324					329					334					339	
gca	tct	ggg	ggc	cct	ctc	cct	tcc	tgc	ttc	acc	ccc	agt	ccg	gca	ccc	1651
Ala	Ser	Gly	Gly	Pro	Leu	Pro	Ser	Cys	Phe	Thr	Pro	Ser	Pro	Ala	Pro	
340					345					350					355	
atc	ctc	aat	att	aac	tca	gcc	agc	ttc	tcc	cag	ggc	ctg	gag	cta	atg	1699
Ile	Leu	Asn	Ile	Asn	Ser	Ala	Ser	Phe	Ser	Gln	Gly	Leu	Glu	Leu	Met	
356					361					366					371	
agt	ggt	ttc	agt	gtg	cca	aaa	gag	acc	cgc	atg	tac	ccc	aaa	ctc	tca	1747
Ser	Gly	Phe	Ser	Val	Pro	Lys	Glu	Thr	Arg	Met	Tyr	Pro	Lys	Leu	Ser	

372	377	382	387	
ggc ctg cac agg agc atg gag tcc ctc cag atg cca atg agc ctc ccc				1795
Gly Leu His Arg Ser Met Glu Ser Leu Gln Met Pro Met Ser Leu Pro				
388	393	398	403	
agt gcc ttc ccc agc agt act ccc gtc ccc acc cca cct gct ccc cct				1843
Ser Ala Phe Pro Ser Ser Thr Pro Val Pro Thr Pro Pro Ala Pro Pro				
404	409	414	419	
gct gct ccc aca gaa gaa gag acg gaa gag ctg act tgg agt gga agc				1891
Ala Ala Pro Thr Glu Glu Glu Thr Glu Glu Leu Thr Trp Ser Gly Ser				
420	425	430	435	
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Pro Arg Ala Gly Gln Leu Asp Ser Asn Gln Arg Asp Arg Asn Thr Leu				
436	441	446	451	
ccc aag aaa ggg ctc agg tac cag ctt cag tcc cag gag gag acc aag				1987
Pro Lys Lys Gly Leu Arg Tyr Gln Leu Gln Ser Gln Glu Glu Thr Lys				
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gag agg cga cat tcc cat acc att ggt ggg ctg cct gaa tcc gat gac				2035
Glu Arg Arg His Ser His Thr Ile Gly Gly Leu Pro Glu Ser Asp Asp				
468	473	478	483	
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Gln Ser Glu Leu Pro Ser Pro Pro Ala Leu Pro Met Ser Leu Ser Ala				
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Lys Gly Gln Leu Thr Asn Ile Val Ser Pro Thr Ala Ala Thr Thr Pro				
500	505	510	515	
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Arg Ile Thr Arg Ser Asn Ser Ile Pro Thr His Glu Ala Ala Phe Glu				
516	521	526	531	
ctg tac agc ggc tcc caa atg ggg agc acc ctg tcc ctg gcc gag aga				2227
Leu Tyr Ser Gly Ser Gln Met Gly Ser Thr Leu Ser Leu Ala Glu Arg				
532	537	542	547	
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Pro Lys Gly Met Ile Arg Ser Gly Ser Phe Arg Asp Pro Thr Asp Asp				
548	553	558	563	
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Val His Gly Ser Val Leu Ser Leu Ala Ser Ser Ala Ser Ser Thr Tyr				
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tcc tca caa atc cgg aag ctt cgt agg gaa ctg gaa tca tcc cag gaa				2371
Ser Ser Gln Ile Arg Lys Leu Arg Arg Glu Leu Glu Ser Ser Gln Glu				
580	585	590	595	
aaa gtg gcc acc ttg acg tct cag ctt tct gcc aat gct aat ctg gtg				2419
Lys Val Ala Thr Leu Thr Ser Gln Leu Ser Ala Asn Ala Asn Leu Val				
596	601	606	611	

gct gct ttt gag cag agc ctg gtg aat atg aca tcc cgc ctg cga cac	2467
Ala Ala Phe Glu Gln Ser Leu Val Asn Met Thr Ser Arg Leu Arg His	
612 617 622 627	
ctg gca gag acg gcc gag gag aag gac act gag ctg ctg gat ttg cga	2515
Leu Ala Glu Thr Ala Glu Glu Lys Asp Thr Glu Leu Leu Asp Leu Arg	
628 633 638 643	
gaa acc ata gac ttt ctg aag aaa aag aac tct gag gcc cag gca gtc	2563
Glu Thr Ile Asp Phe Leu Lys Lys Lys Asn Ser Glu Ala Gln Ala Val	
644 649 654 659	
att cag gga gcc ctt aat gcc tca gaa acc aca ccc ^h aaa ggt agg aca	2611
Ile Gln Gly Ala Leu Asn Ala Ser Glu Thr Thr Pro Lys Gly Arg Thr	
660 665 670 675	
tcc agc cac aga ttg aga ggg aac agg gag cag gaa agt aag agt att	2659
Ser Ser His Arg Leu Arg Gly Asn Arg Glu Gln Glu Ser Lys Ser Ile	
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aca gat ttt tat ctg ggc cca tag tattccaagt cctatatcaa gtctctagaa	2713
Thr Asp Phe Tyr Leu Gly Pro *	
692 697	
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gccctttaca ttnttatgca aatgtgttgt gtgtccacac acacacaaac aatcttattt	2953
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gggttaattt cggagcagcc caggtggagg tcgagcccc aaccccgctg gcacctccag 180
gcttccgagg ccaccggaac ggaggaggct tcggtggctc tttgtctacc tgctctgggt 240
gttaaagagc ccgctcgcag cctgcatcgc cggggctcgg gacagaagtc agcggcgggg 300
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tagtggactc agcgatgcct cagacaatct cagttcagaa gaattcaatg ccagctctc 420
actcaactcc ctcccaagta ctcccactgc ttctcgcagg aagtcaacaa tagtgctacg 480
cacagactca tagaagcgct cactggcaga aagtgggctg agctgggtta gtgaatcaga 540
ggagaaagcc cctaaaaaac tggagtacga cagtggtagc ctgaag atg gaa cct 595
Met Glu Pro
1
ggg act tct aag tgg cgg agg gag cgg cct gag agc tgt gat gat tca 643
Gly Thr Ser Lys Trp Arg Arg Glu Arg Pro Glu Ser Cys Asp Asp Ser
4 9 14 19
tcc aag ggt gga gaa ctg aaa aag ccc atc agc ctg ggc cac cct ggt 691
Ser Lys Gly Gly Glu Leu Lys Lys Pro Ile Ser Leu Gly His Pro Gly
20 25 30 35
tcc ctg aag aag ggc aag acc cca cct gtg gct gta act tcc ccc atc 739
Ser Leu Lys Lys Gly Lys Thr Pro Pro Val Ala Val Thr Ser Pro Ile
36 41 46 51
act cac aca gcc cag agt gcc ctc aaa gtc gca ggc aaa cct gag ggc 787
Thr His Thr Ala Gln Ser Ala Leu Lys Val Ala Gly Lys Pro Glu Gly
52 57 62 67
aaa gct aca gac aag ggt aag ctt gca gtg aag aat act ggg ctc caa 835
Lys Ala Thr Asp Lys Gly Lys Leu Ala Val Lys Asn Thr Gly Leu Gln
68 73 78 83
cgc tcc tcc tct gat gct ggt cgg gac cgc ctg agt gat gct aag aag 883
Arg Ser Ser Ser Asp Ala Gly Arg Asp Arg Leu Ser Asp Ala Lys Lys
84 89 94 99
ccc ccc tcg ggc att gct cgc ccc tcc act tcg gga tcc ttt ggc tac 931
Pro Pro Ser Gly Ile Ala Arg Pro Ser Thr Ser Gly Ser Phe Gly Tyr
100 105 110 115
aag aag cct cct cct gcc aca ggc aca gcc act gtc atg caa act ggt 979
Lys Lys Pro Pro Pro Ala Thr Gly Thr Ala Thr Val Met Gln Thr Gly
116 121 126 131
ggg tca gcc act ctc agc aag atc cag aag tcc tca ggc atc cct gtc 1027
Gly Ser Ala Thr Leu Ser Lys Ile Gln Lys Ser Ser Gly Ile Pro Val
132 137 142 147
aag cca gta aat ggg cgc aag act agc tta gat gtt tcc aac agt gca 1075

Lys 148	Pro	Val	Asn	Gly	Arg 153	Lys	Thr	Ser	Leu	Asp 158	Val	Ser	Asn	Ser	Ala 163	
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agc Ser 180	ctg Leu	ccc Pro	cgg Arg	cca Pro	gcc Ala 185	aag Lys	tca Ser	agt Ser	tct Ser	atg Met 190	agc Ser	gtg Val	acc Thr	ggc Gly	ggg Gly 195	1171
cgg Arg 196	ggt Gly	gga Gly	cct Pro	cgc Arg	cct Pro 201	gtg Val	agc Ser	agc Ser	agc Ser	att Ile 206	gac Asp	ccc Pro	agt Ser	ctc Leu	ctc Leu 211	1219
agc Ser 212	acc Thr	aag Lys	cag Gln	gga Gly	ggc Gly 217	ctt Leu	acg Thr	cct Pro	tcc Ser	aga Arg 222	ctg Leu	aag Lys	gag Glu	cct Pro	acc Thr 227	1267
aag Lys 228	gta Val	gcc Ala	agt Ser	ggg Gly	cgg Arg 233	acc Thr	act Thr	cca Pro	gcc Ala	cct Pro 238	gtc Val	aat Asn	cag Gln	aca Thr	gat Asp 243	1315
cgg Arg 244	gaa Glu	aag Lys	gag Glu	aag Lys	gcc Ala 249	aaa Lys	gcc Ala	aag Lys	gca Ala	gtg Val 254	gcc Ala	ttg Leu	gac Asp	tca Ser	gac Asp 259	1363
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aat Asn 308	ctt Leu	gac Asp	aag Lys	gtc Val	aac Asn 313	tcc Ser	aac Asn	agt Ser	ctg Leu	gat Asp 318	cta Leu	cca Pro	tca Ser	tcc Ser	agt Ser 323	1555
gat Asp 324	acc Thr	acc Thr	cat His	gct Ala	tca Ser 329	aag Lys	gtc Val	cca Pro	gat Asp	ctg Leu 334	cat His	gct Ala	aca Thr	agc Ser	tca Ser 339	1603
gca Ala 340	tct Ser	ggg Gly	ggc Gly	cct Pro	ctc Leu 345	cct Pro	tcc Ser	tgc Cys	ttc Phe	acc Thr 350	ccc Pro	agt Ser	ccg Pro	gca Ala	ccc Pro 355	1651
atc Ile 356	ctc Leu	aat Asn	att Ile	aac Asn	tca Ser 361	gcc Ala	agc Ser	ttc Phe	tcc Ser	cag Gln 366	ggc Gly	ctg Leu	gag Glu	cta Leu	atg Met 371	1699
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Gly Leu His Arg Ser Met Glu Ser Leu Gln Met Pro Met Ser Leu Pro				
388	393	398	403	
agt gcc ttc ccc agc agt act ccc gtc ccc acc cca cct gct ccc cct				1843
Ser Ala Phe Pro Ser Ser Thr Pro Val Pro Thr Pro Pro Ala Pro Pro				
404	409	414	419	
gct gct ccc aca gaa gaa gag acg gaa gag ctg act tgg agt gga agc				1891
Ala Ala Pro Thr Glu Glu Glu Thr Glu Glu Leu Thr Trp Ser Gly Ser				
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ccc aga gct ggg caa ctg gac agt aat cag cgg gat cgg aac act ctt				1939
Pro Arg Ala Gly Gln Leu Asp Ser Asn Gln Arg Asp Arg Asn Thr Leu				
436	441	446	451	
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Pro Lys Lys Gly Leu Arg Tyr Gln Leu Gln Ser Gln Glu Glu Thr Lys				
452	457	462	467	
gag agg cga cat tcc cat acc att ggt ggg ctg cct gaa tcc gat gac				2035
Glu Arg Arg His Ser His Thr Ile Gly Gly Leu Pro Glu Ser Asp Asp				
468	473	478	483	
cag tca gag ctg cct tct ccc cct gca ctt ccc atg tct ctg agt gca				2083
Gln Ser Glu Leu Pro Ser Pro Pro Ala Leu Pro Met Ser Leu Ser Ala				
484	489	494	499	
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gaa ctg gaa tca tcc cag gaa aaa gtg gcc acc ttg acg tct cag ctt				2227
Glu Leu Glu Ser Ser Gln Glu Lys Val Ala Thr Leu Thr Ser Gln Leu				
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Met Thr Ser Arg Leu Arg His Leu Ala Glu Thr Ala Glu Glu Lys Asp				
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act gag ctg ctg gat ttg cga gaa acc ata gac ttt ctg aag aaa aag				2371
Thr Glu Leu Leu Asp Leu Arg Glu Thr Ile Asp Phe Leu Lys Lys Lys				
580	585	590	595	
aac tct gag gcc cag gca gtc att cag gga gcc ctt aat gcc tca gaa				2419
Asn Ser Glu Ala Gln Ala Val Ile Gln Gly Ala Leu Asn Ala Ser Glu				
596	601	606	611	

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Thr Thr Pro Lys Gly Arg Thr Ser Ser His Arg Leu Arg Gly Asn Arg	
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Glu Gln Glu Ser Lys Ser Ile Thr Asp Phe Tyr Leu Gly Pro *	
628 633 638	
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tccacacaca cacaaacaat cttatttgat cctcacttta gttctccaac tactcttcca	2815
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gcttcgagg ccaccggaac ggaggaggct tcggtggctc tttgtctacc tgctctgggt	240
gttaaagagc ccgctcgag cctgcatcgc cggggctcgg gacagaagtc agcggcgggg	300
aaatggggct ctgtcacttt aagtacagct ggagccctgg gatgaaagca gctccatcag	360
tagtggactc agcgatgcct cagacaatct cagttcagaa gaattcaatg ccagctcctc	420
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cacagactca tagaagcgt cactggcaga aagtgggctg agctgggtta gtgaatcaga	540

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ggg act tct aag tgg cgg agg gag cgg cct gag agc tgt gat gat tca Gly Thr Ser Lys Trp Arg Arg Glu Arg Pro Glu Ser Cys Asp Asp Ser 4 9 14 19		643
tcc aag ggt gga gaa ctg aaa aag ccc atc agc ctg ggc cac cct ggt Ser Lys Gly Gly Glu Leu Lys Lys Pro Ile Ser Leu Gly His Pro Gly 20 25 30 35		691
tcc ctg aag aag ggc aag acc cca cct gtg gct gta act tcc ccc atc Ser Leu Lys Lys Gly Lys Thr Pro Pro Val Ala Val Thr Ser Pro Ile 36 41 46 51		739
act cac aca gcc cag agt gcc ctc aaa gtc gca ggc aaa cct gag ggc Thr His Thr Ala Gln Ser Ala Leu Lys Val Ala Gly Lys Pro Glu Gly 52 57 62 67		787
aaa gct aca gac aag ggt aag ctt gca gtg aag aat act ggg ctc caa Lys Ala Thr Asp Lys Gly Lys Leu Ala Val Lys Asn Thr Gly Leu Gln 68 73 78 83		835
cgc tcc tcc tct gat gct ggt cgg gac cgc ctg agt gat gct aag aag Arg Ser Ser Ser Asp Ala Gly Arg Asp Arg Leu Ser Asp Ala Lys Lys 84 89 94 99		883
ccc ccc tcg ggc att gct cgc ccc tcc act tcg gga tcc ttt ggc tac Pro Pro Ser Gly Ile Ala Arg Pro Ser Thr Ser Gly Ser Phe Gly Tyr 100 105 110 115		931
aag aag cct cct cct gcc aca ggc aca gcc act gtc atg caa act ggt Lys Lys Pro Pro Pro Ala Thr Gly Thr Ala Thr Val Met Gln Thr Gly 116 121 126 131		979
ggt tca gcc act ctc agc aag atc cag aag tcc tca ggc atc cct gtc Gly Ser Ala Thr Leu Ser Lys Ile Gln Lys Ser Ser Gly Ile Pro Val 132 137 142 147		1027
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agc ctg ccc cgg cca gcc aag tca agt tct atg agc gtg acc ggc ggg Ser Leu Pro Arg Pro Ala Lys Ser Ser Ser Met Ser Val Thr Gly Gly 180 185 190 195		1171
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Ser Thr Lys Gln Gly Gly Leu Thr Pro Ser Arg Leu Lys Glu Pro Thr	
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Lys Val Ala Ser Gly Arg Thr Thr Pro Ala Pro Val Asn Gln Thr Asp	
228 233 238 243	
cgg gaa aag gag aag gcc aaa gcc aag gca gtg gcc ttg gac tca gac	1363
Arg Glu Lys Glu Lys Ala Lys Ala Lys Ala Val Ala Leu Asp Ser Asp	
244 249 254 259	
aac atc tcc ttg aag agt att ggc tcc cca gaa agt act ccc aag aac	1411
Asn Ile Ser Leu Lys Ser Ile Gly Ser Pro Glu Ser Thr Pro Lys Asn	
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Gln Ala Ser His Pro Thr Ala Thr Lys Leu Ala Glu Leu Pro Pro Thr	
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Pro Leu Arg Ala Thr Ala Lys Ser Phe Val Lys Pro Pro Ser Leu Ala	
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Asn Leu Asp Lys Val Asn Ser Asn Ser Leu Asp Leu Pro Ser Ser Ser	
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Asp Thr Thr His Ala Ser Lys Val Pro Asp Leu His Ala Thr Ser Ser	
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Ala Ser Gly Gly Pro Leu Pro Ser Cys Phe Thr Pro Ser Pro Ala Pro	
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atc ctc aat att aac tca gcc agc ttc tcc cag ggc ctg gag cta atg	1699
Ile Leu Asn Ile Asn Ser Ala Ser Phe Ser Gln Gly Leu Glu Leu Met	
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Ser Gly Phe Ser Val Pro Lys Glu Thr Arg Met Tyr Pro Lys Leu Ser	
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Gly Leu His Arg Ser Met Glu Ser Leu Gln Met Pro Met Ser Leu Pro	
388 393 398 403	
agt gcc ttc ccc agc agt act ccc gtc ccc acc cca cct gct ccc cct	1843
Ser Ala Phe Pro Ser Ser Thr Pro Val Pro Thr Pro Pro Ala Pro Pro	
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Ala Ala Pro Thr Glu Glu Glu Thr Glu Glu Leu Thr Trp Ser Gly Ser	
420 425 430 435	
ccc aga gct ggg caa ctg gac agt aat cag cgg gat cgg aac act ctt	1939
Pro Arg Ala Gly Gln Leu Asp Ser Asn Gln Arg Asp Arg Asn Thr Leu	

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gag agg cga cat tcc cat acc att ggt ggg ctg cct gaa tcc gat gac				2035
Glu Arg Arg His Ser His Thr Ile Gly Gly Leu Pro Glu Ser Asp Asp				
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Gln Ser Glu Leu Pro Ser Pro Pro Ala Leu Pro Met Ser Leu Ser Ala				
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Lys Gly Gln Leu Thr Asn Ile Val Ser Pro Thr Ala Ala Thr Thr Pro				
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Arg Ile Thr Arg Ser Asn Ser Ile Pro Thr His Glu Ala Ala Phe Glu				
516	521	526	531	
ctg tac agc ggc tcc caa atg ggg agc acc ctg tcc ctg gcc gag aga				2227
Leu Tyr Ser Gly Ser Gln Met Gly Ser Thr Leu Ser Leu Ala Glu Arg				
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Pro Lys Gly Met Ile Arg Ser Gly Ser Phe Arg Asp Pro Thr Asp Asp				
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Val His Gly Ser Val Leu Ser Leu Ala Ser Ser Ala Ser Ser Thr Tyr				
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Ser Ser Ala Glu Glu Arg Met Gln Ser Glu Gln Ile Arg Lys Leu Arg				
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Arg Glu Leu Glu Ser Ser Gln Glu Lys Val Ala Thr Leu Thr Ser Gln				
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ctt tct gcc aat gct aat ctg gtg gct gct ttt gag cag agc ctg gtg				2467
Leu Ser Ala Asn Ala Asn Leu Val Ala Ala Phe Glu Gln Ser Leu Val				
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aat atg aca tcc cgc ctg cga cac ctg gca gag acg gcc gag gag aag				2515
Asn Met Thr Ser Arg Leu Arg His Leu Ala Glu Thr Ala Glu Glu Lys				
628	633	638	643	
gac act gag ctg ctg gat ttg cga gaa acc ata gac ttt ctg aag aaa				2563
Asp Thr Glu Leu Leu Asp Leu Arg Glu Thr Ile Asp Phe Leu Lys Lys				
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Lys Asn Ser Glu Ala Gln Ala Val Ile Gln Gly Ala Leu Asn Ala Ser				
660	665	670	675	

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 Glu Thr Thr Pro Lys Gly Arg Thr Ser Ser His Arg Leu Arg Gly Asn
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 agg gag cag gaa agt aag agt att aca gat ttt tat ctg ggc cca tag 2707
 Arg Glu Gln Glu Ser Lys Ser Ile Thr Asp Phe Tyr Leu Gly Pro *
 692 697 702 707
 tattccaagt cctatatcaa gtctctagaa ggtgagggcc tttagatacc ctttagtgtg 2767
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 acgcgtccgc ggacgcgtgg gccgccctga agaagctggt ggggtcggac caggccccgg 180
 gccgggacaa gaacatcccc gccgggctgc agtcc atg aac cag gcg ttg cag 233
 Met Asn Gln Ala Leu Gln
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 agg cgc ttc gcc aag ggg gtg cag tac aac atg aag ata gtg atc cgg 281
 Arg Arg Phe Ala Lys Gly Val Gln Tyr Asn Met Lys Ile Val Ile Arg
 7 12 17 22
 gga gac agg aac acg ggc aag aca gcg ctg tgg cac cgc ctg cag ggc 329
 Gly Asp Arg Asn Thr Gly Lys Thr Ala Leu Trp His Arg Leu Gln Gly

23	28	33	38	
cgg ccg ttc gtg gag gag tac atc ccc aca cag gag atc cag gtc acc				377
Arg Pro Phe Val Glu Glu Tyr Ile Pro Thr Gln Glu Ile Gln Val Thr				
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agc atc cac tgg agc tac aag acc acg gat gac atc gtg aag gtt gaa				425
Ser Ile His Trp Ser Tyr Lys Thr Thr Asp Asp Ile Val Lys Val Glu				
55	60	65	70	
gtc tgg gat gta gta gac aaa gga aaa tgc aaa aag cga ggc gac ggc				473
Val Trp Asp Val Val Asp Lys Gly Lys Cys Lys Lys Arg Gly Asp Gly				
71	76	81	86	
tta aag atg gag aac gac ccc cag gag gcg gag tct gaa atg gcc ctg				521
Leu Lys Met Glu Asn Asp Pro Gln Glu Ala Glu Ser Glu Met Ala Leu				
87	92	97	102	
gat gct gag ttc ctg gac gtg tac aag aac tgc aac ggg gtg gtc atg				569
Asp Ala Glu Phe Leu Asp Val Tyr Lys Asn Cys Asn Gly Val Val Met				
103	108	113	118	
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Met Phe Asp Ile Thr Lys Gln Trp Thr Phe Asn Tyr Ile Leu Arg Glu				
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ctt cca aaa gtg ccc acc cac gtg cca gtg tgc gtg ctg ggg aac tac				665
Leu Pro Lys Val Pro Thr His Val Pro Val Cys Val Leu Gly Asn Tyr				
135	140	145	150	
cgg gac atg ggc gag cac cga gtc atc ctg ccg gac gac gtg cgt gac				713
Arg Asp Met Gly Glu His Arg Val Ile Leu Pro Asp Asp Val Arg Asp				
151	156	161	166	
ttc atc gac aac ctg gac aga cct cca ggt tcc tcc tac ttc cgc tat				761
Phe Ile Asp Asn Leu Asp Arg Pro Pro Gly Ser Ser Tyr Phe Arg Tyr				
167	172	177	182	
gct gag tct tcc atg aag aac agc ttc ggc cta aag tac ctt cat aag				809
Ala Glu Ser Ser Met Lys Asn Ser Phe Gly Leu Lys Tyr Leu His Lys				
183	188	193	198	
ttc ttc aat atc cca ttt ttg cag ctt cag agg gag acg ctg ttg cgg				857
Phe Phe Asn Ile Pro Phe Leu Gln Leu Gln Arg Glu Thr Leu Leu Arg				
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Gln Leu Glu Thr Asn Gln Leu Asp Met Asp Ala Thr Leu Glu Glu Leu				
215	220	225	230	
tcg gtg cag cag gag agg gag gac cag aac tac ggc atc ttc ctg gag				953
Ser Val Gln Gln Glu Arg Glu Asp Gln Asn Tyr Gly Ile Phe Leu Glu				
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Met Met Glu Ala Arg Ser Arg Gly His Ala Ser Pro Leu Ala Ala Asn				
247	252	257	262	

ggg Gly 263	cag Gln 263	agc Ser 263	cca Pro 263	tcc Ser 263	ccg Pro 268	ggc Gly 268	tcc Ser 268	cag Gln 268	tca Ser 268	cca Pro 273	gtg Val 273	gtg Val 273	cct Pro 273	gca Ala 278	ggc Gly 278	1049
gct Ala 279	gtg Val 279	tcc Ser 279	acg Thr 279	ggg Gly 284	agc Ser 284	tcc Ser 284	agc Ser 284	ccc Pro 284	ggc Gly 289	aca Thr 289	ccc Pro 289	cag Gln 289	ccc Pro 289	gcc Ala 294	cca Pro 294	1097
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ccc Pro 311	tca Ser 311	gag Glu 311	gcc Ala 311	ctg Leu 316	ccc Pro 316	cca Pro 316	cct Pro 316	gcg Ala 321	tgc Cys 321	ccc Pro 321	tca Ser 321	gcc Ala 326	ccc Pro 326	gcc Ala 326	cca Pro 326	1193
cgg Arg 327	cgc Arg 327	agc Ser 327	atc Ile 327	atc Ile 332	tct Ser 332	agg Arg 332	ctg Leu 332	ttt Phe 332	ggg Gly 337	acg Thr 337	tca Ser 337	cct Pro 337	gcc Ala 342	acc Thr 342	gag Glu 342	1241
gca Ala 343	gcc Ala 343	cct Pro 343	cca Pro 343	cct Pro 348	cca Pro 348	gag Glu 348	cca Pro 348	gtc Val 348	ccg Pro 353	gcc Ala 353	gca Ala 353	cag Gln 353	ggc Gly 353	cca Pro 358	gca Ala 358	1289
acg Thr 359	gtc Val 359	cag Gln 359	agt Ser 359	gtg Val 364	gag Glu 364	gac Asp 364	ttt Phe 364	gtt Val 364	cct Pro 369	gac Asp 369	gac Asp 369	cgc Arg 369	ctg Leu 369	gac Asp 374	cgc Arg 374	1337
agc Ser 375	ttc Phe 375	ctg Leu 375	gaa Glu 375	gac Asp 380	aca Thr 380	acc Thr 380	ccc Pro 380	gcc Ala 380	agg Arg 385	gac Asp 385	gag Glu 385	aag Lys 385	aag Lys 385	gtg Val 390	ggg Gly 390	1385
gcc Ala 391	aag Lys 391	gct Ala 391	gcc Ala 391	cag Gln 396	cag Gln 396	gac Asp 396	agc Ser 396	gac Asp 396	agt Ser 401	gat Asp 401	ggg Gly 401	gag Glu 401	gcc Ala 401	ctg Leu 406	ggc Gly 406	1433
ggc Gly 407	aac Asn 407	ccg Pro 407	atg Met 407	gtg Val 412	gca Ala 412	ggg Gly 412	ttc Phe 412	cag Gln 412	gac Asp 417	gat Asp 417	gtg Val 417	gac Asp 417	ctc Leu 417	gaa Glu 422	gac Asp 422	1481
cag Gln 423	cca Pro 423	cgt Arg 423	ggg Gly 423	agt Ser 428	ccc Pro 428	ccg Pro 428	ctg Leu 428	cct Pro 428	gca Ala 433	ggc Gly 433	ccc Pro 433	gtc Val 433	ccc Pro 433	agt Ser 438	caa Gln 438	1529
gac Asp 439	atc Ile 439	act Thr 439	ctt Leu 439	tcg Ser 444	agt Ser 444	gag Glu 444	gag Glu 444	gaa Glu 444	gca Ala 449	gaa Glu 449	gtg Val 449	gca Ala 449	gct Ala 449	ccc Pro 454	aca Thr 454	1577
aaa Lys 455	ggc Gly 455	cct Pro 455	gcc Ala 455	cca Pro 460	gct Ala 460	ccc Pro 460	cag Gln 460	cag Gln 460	tgc Cys 465	tca Ser 465	gag Glu 465	cca Pro 465	gag Glu 465	acc Thr 470	aag Lys 470	1625
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Arg Thr Ala Ala Pro Pro Trp Pro Gly Gly Val Ser Val Arg Thr Gly	
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Pro Glu Lys Arg Ser Ser Thr Arg Pro Pro Ala Glu Met Glu Pro Gly	
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Lys Gly Glu Gln Ala Ser Ser Ser Glu Ser Asp Pro Glu Gly Pro Ile	
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Ala Ala Gln Met Leu Ser Phe Val Met Asp Asp Pro Asp Phe Glu Ser	
535 540 545 550	
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Glu Gly Ser Asp Thr Gln Arg Arg Ala Asp Asp Phe Pro Val Arg Asp	
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Asp Pro Ser Asp Val Thr Asp Glu Asp Glu Gly Pro Ala Glu Pro Pro	
567 572 577 582	
cca ccc ccc aag ctc cct ctc ccc gcc ttc aga ctg aag aat gac tcg	2009
Pro Pro Pro Lys Leu Pro Leu Pro Ala Phe Arg Leu Lys Asn Asp Ser	
583 588 593 598	
gac ctc ttc ggg ctg ggg ctg gag gag gcc gga ccc aag gag agc agt	2057
Asp Leu Phe Gly Leu Gly Leu Glu Glu Ala Gly Pro Lys Glu Ser Ser	
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Glu Glu Gly Lys Glu Gly Lys Thr Pro Ser Lys Glu Lys Lys Lys Lys	
615 620 625 630	
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Lys Lys Lys Gly Arg Pro Leu *	
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Met Asn Lys Ser Leu Gly Pro Val Ser Phe	
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Lys Asp Val Ala Val Asp Phe Thr Gln Glu Glu Trp Gln Gln Leu Asp	
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Pro Glu Gln Lys Ile Thr Tyr Arg Asp Val Met Leu Glu Asn Tyr Ser	
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Asn Leu Val Ser Val Gly Tyr His Ile Ile Lys Pro Asp Val Ile Ser	
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Lys Leu Glu Gln Gly Glu Glu Pro Trp Ile Val Glu Gly Glu Phe Leu	
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Leu Gln Ser Tyr Pro Asp Glu Val Trp Gln Thr Asp Asp Leu Ile Glu	
75 80 85 90	
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Arg Ile Gln Glu Glu Glu Asn Lys Pro Ser Arg Gln Thr Val Phe Ile	
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Glu Thr Leu Ile Glu Glu Arg Gly Asn Val Pro Gly Lys Thr Phe Asp	
107 112 117 122	
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Ser Ser Asp Gly Ser Tyr Ala Arg Met Lys Ala Asp Glu Cys Ser Gly	
155 160 165 170	
tgt ggg aaa tca ctc ctc cat att aag ctt gag aaa act cat cca gga	698
Cys Gly Lys Ser Leu Leu His Ile Lys Leu Glu Lys Thr His Pro Gly	
171 176 181 186	
gat caa gct tat gaa ttt aat caa aat ggg gaa cct tat act cta aat	746
Asp Gln Ala Tyr Glu Phe Asn Gln Asn Gly Glu Pro Tyr Thr Leu Asn	
187 192 197 202	
gaa gaa agt ctt tat cag aaa att cgt att ttg gag aaa cct ttt gaa	794

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Gly Lys Ala Phe Ser Arg Met Ser Tyr Leu Thr Val His Tyr Arg Thr				
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His Ser Gly Glu Lys Pro Tyr Glu Cys Thr Glu Cys Gly Lys Lys Phe				
459	464	469	474	
tac cac aaa tca gca ttc aac agc cat cag aga att cat agg aga ggc				1610
Tyr His Lys Ser Ala Phe Asn Ser His Gln Arg Ile His Arg Arg Gly				
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Asn Met Asn Val Ile Asp Val Gly Arg Leu Leu *				
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Glu Gln Ile Leu Glu Asp Val Arg Gly Ala Pro Ala Glu Asp Pro Val	
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Phe Thr Ile Leu Ala Pro Glu Asp Pro Pro Val Pro Phe Arg Met Met	
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Cys Gly Glu Lys Pro Leu Lys Arg Gln Gln Gly Arg Val Pro Val Leu	
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Thr Ser Asn Val Val Arg Gln Val Leu Glu Ala Val Ala Tyr Leu His		
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Ser Leu Lys Ile Val His Arg Asn Leu Lys Leu Glu Asn Leu Val Tyr		
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Met Pro Phe Gly Cys Val Thr Leu Gly
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Asp Lys Lys Asn Tyr Asn Gln Pro Ser Glu Val Thr Asp Arg Tyr Asp
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Leu Gly Gln Val Ile Lys Thr Glu Glu Phe Cys Glu Ile Phe Arg Ala
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Lys Asp Lys Thr Thr Gly Lys Leu His Thr Cys Lys Lys Phe Gln Lys
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Pro Pro Phe Tyr Glu Glu Val Glu Glu Asp Asp Tyr Glu Asn His Asp				
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Ile Thr Pro Ala Thr Asp Gly Ser Val Thr Pro Ala Thr Asp Arg Ser				
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Glu Asp Asn Leu Ser Ala Thr Pro Pro Ala Leu Arg Ile Ile Leu Val
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Ala Ile Arg Lys Val Lys Glu Val Phe Gly Thr Gly Ala Met Arg His	
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 gcaggtctgt gagcttcgtc tccctttcct tcttcgcagt gtactaatgg tcaacttg 177
 atg tgc gct ggc tgt ttt atc cac cta cta gca gat gcc cgg ctg aag 225
 Met Cys Ala Gly Cys Phe Ile His Leu Leu Ala Asp Ala Arg Leu Lys
 1 5 10 15
 gag gag cag gcc acg tgc ccc aat tgt cgt tgt gag atc agt aag agc 273
 Glu Glu Gln Ala Thr Cys Pro Asn Cys Arg Cys Glu Ile Ser Lys Ser
 17 22 27 32
 ctc tgc tgc cgg aac ctg gcc gtg gag aaa gcc gtg agc gag ctg cct 321
 Leu Cys Cys Arg Asn Leu Ala Val Glu Lys Ala Val Ser Glu Leu Pro
 33 38 43 48
 tca gag tgt ggc ttc tgc ctg cgc cag ttt ccc cgc tcc ctc ctg gag 369
 Ser Glu Cys Gly Phe Cys Leu Arg Gln Phe Pro Arg Ser Leu Leu Glu
 49 54 59 64
 agg cac cag aaa gag gaa tgc cag gac agg gta acc cag tgc aag tac 417

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aaa	cgc	atc	ggc	tgc	cca	tgg	cac	ggc	ccc	ttc	cat	gag	ctg	acg	gtg	465
Lys	Arg	Ile	Gly	Cys	Pro	Trp	His	Gly	Pro	Phe	His	Glu	Leu	Thr	Val	
81					86					91						96
cac	gag	gct	gcg	tgc	gcc	cac	ccg	acc	aag	aca	ggc	agt	gag	ctg	atg	513
His	Glu	Ala	Ala	Cys	Ala	His	Pro	Thr	Lys	Thr	Gly	Ser	Glu	Leu	Met	
97					102					107						112
gag	atc	ctg	gat	ggg	atg	gac	cag	agc	cac	cgc	aag	gag	atg	cag	ctg	561
Glu	Ile	Leu	Asp	Gly	Met	Asp	Gln	Ser	His	Arg	Lys	Glu	Met	Gln	Leu	
113					118					123						128
tac	aac	agc	atc	ttc	agc	ctg	ctc	agc	ttc	gag	aag	att	ggc	tac	aca	609
Tyr	Asn	Ser	Ile	Phe	Ser	Leu	Leu	Ser	Phe	Glu	Lys	Ile	Gly	Tyr	Thr	
129					134					139						144
gag	gtc	cag	ttc	cgg	ccg	tac	cgc	aca	gac	gac	ttc	atc	acg	cgc	ctg	657
Glu	Val	Gln	Phe	Arg	Pro	Tyr	Arg	Thr	Asp	Asp	Phe	Ile	Thr	Arg	Leu	
145					150					155						160
tac	tat	gag	acg	ccc	agg	ttc	aca	gtg	ctg	aac	cag	acg	tgg	gtc	ctg	705
Tyr	Tyr	Glu	Thr	Pro	Arg	Phe	Thr	Val	Leu	Asn	Gln	Thr	Trp	Val	Leu	
161					166					171						176
aag	gct	cga	gtc	aac	gac	tcg	gag	cgt	aac	ccc	aac	ctg	tcc	tgc	aag	753
Lys	Ala	Arg	Val	Asn	Asp	Ser	Glu	Arg	Asn	Pro	Asn	Leu	Ser	Cys	Lys	
177					182					187						192
cgt	acg	ctc	tcc	ttc	cag	ctc	ctc	ctc	aag	agc	aag	gtc	acg	gca	ccg	801
Arg	Thr	Leu	Ser	Phe	Gln	Leu	Leu	Leu	Lys	Ser	Lys	Val	Thr	Ala	Pro	
193					198					203						208
ctg	gag	tgc	tcc	ttc	ctg	ctg	ctc	aag	ggc	ccc	tac	gac	gac	gtg	agg	849
Leu	Glu	Cys	Ser	Phe	Leu	Leu	Leu	Lys	Gly	Pro	Tyr	Asp	Asp	Val	Arg	
209					214					219						224
atc	agc	ccc	gtc	atc	tac	cac	ttt	gtc	ttc	acc	aac	gag	agc	aac	gag	897
Ile	Ser	Pro	Val	Ile	Tyr	His	Phe	Val	Phe	Thr	Asn	Glu	Ser	Asn	Glu	
225					230					235						240
acg	gac	tac	gtg	cca	ctg	ccc	atc	att	gac	tcc	gtg	gag	tgc	aac	aag	945
Thr	Asp	Tyr	Val	Pro	Leu	Pro	Ile	Ile	Asp	Ser	Val	Glu	Cys	Asn	Lys	
241					246					251						256
ctg	ctg	gct	gcc	aag	aac	atc	aac	ctg	cgg	ctc	ttc	ctg	ttc	cag	ata	993
Leu	Leu	Ala	Ala	Lys	Asn	Ile	Asn	Leu	Arg	Leu	Phe	Leu	Phe	Gln	Ile	
257					262					267						272
cag	aag	tag	ggcgggg	cctcaggatg	tccgaggagc	ccacggggcgg	catcccagca									1049
Gln	Lys	*														
273																
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tgacctggtt gtccacgcgg atgttcgaaa ctcccaggat ggagagaaaa acagagcagg 180
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cggagccact gcgaggacat tgatgagtgt gacttcctg cagcctgcat tgggggtgac 360
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gagtgtgct gctctctggg ggccggctgg ggcgaccact gcgaaatcta cccctgcccc 720
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aacaacatcg tcaactacgg catcccagcc caccgtgaca tcgacgagtg c atg ttg 837
Met Leu
1

ttc ggg tcg gag att tgc aag gag ggc aag tgc gtg aac acg cag cct 885
Phe Gly Ser Glu Ile Cys Lys Glu Gly Lys Cys Val Asn Thr Gln Pro

3	8	13	18	
ggc tac gag tgc tac tgc aag cag ggc ttc tac tac gac ggg aac ctg				933
Gly Tyr Glu Cys Tyr Cys Lys Gln Gly Phe Tyr Tyr Asp Gly Asn Leu				
19	24	29	34	
ctg gaa tgc gtg gac gtg gac gag tgc ctg gac gag tcc aac tgc cgg				981
Leu Glu Cys Val Asp Val Asp Glu Cys Leu Asp Glu Ser Asn Cys Arg				
35	40	45	50	
aac gga gtg tgt gag aac acg cgc ggc ggc tac cgc tgt gcc tgc acg				1029
Asn Gly Val Cys Glu Asn Thr Arg Gly Gly Tyr Arg Cys Ala Cys Thr				
51	56	61	66	
ccc cct gcc gag tac agt ccc gcg cag cgc cag tgc ctg agc ccg gaa				1077
Pro Pro Ala Glu Tyr Ser Pro Ala Gln Arg Gln Cys Leu Ser Pro Glu				
67	72	77	82	
gag atg gac gtg gac gag tgc cag gac ccg gca gcc tgc cgc cct ggc				1125
Glu Met Asp Val Asp Glu Cys Gln Asp Pro Ala Ala Cys Arg Pro Gly				
83	88	93	98	
cgc tgc gtc aac ctg ccg ggc tcc tac cgc tgc gag tgt cgc ccg ccc				1173
Arg Cys Val Asn Leu Pro Gly Ser Tyr Arg Cys Glu Cys Arg Pro Pro				
99	104	109	114	
tgg gtg ccc ggg ccc tcc ggc cgc gat tgc cag ctc ccc gag agc ccg				1221
Trp Val Pro Gly Pro Ser Gly Arg Asp Cys Gln Leu Pro Glu Ser Pro				
115	120	125	130	
gcc gag cgt gcc ccg gag cgg cgc gac gtg tgc tgg agc cag cgc gga				1269
Ala Glu Arg Ala Pro Glu Arg Arg Asp Val Cys Trp Ser Gln Arg Gly				
131	136	141	146	
gag gac ggc atg tgc gct ggc ccc ctg gcc ggg cct gcc ctc acc ttc				1317
Glu Asp Gly Met Cys Ala Gly Pro Leu Ala Gly Pro Ala Leu Thr Phe				
147	152	157	162	
gac gac tgc tgc tgc cgc cag ggc cgc ggc tgg ggc gcc caa tgc cga				1365
Asp Asp Cys Cys Cys Arg Gln Gly Arg Gly Trp Gly Ala Gln Cys Arg				
163	168	173	178	
ccg tgc ccg ccg cgc ggc gcg ggg tcc cat tgc ccg aca tcg cag agc				1413
Pro Cys Pro Pro Arg Gly Ala Gly Ser His Cys Pro Thr Ser Gln Ser				
179	184	189	194	
gag agc aat tcc ttc tgg gac aca agc ccc ctg ctg ttg ggg aag ccc				1461
Glu Ser Asn Ser Phe Trp Asp Thr Ser Pro Leu Leu Leu Gly Lys Pro				
195	200	205	210	
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Pro Arg Asp Glu Asp Ser Ser Glu Glu Asp Ser Asp Glu Cys Arg Cys				
211	216	221	226	
gtg agt ggc cgc tgc gtg ccg cgg ccg ggc ggc gcc gtg tgc gag tgt				1557
Val Ser Gly Arg Cys Val Pro Arg Pro Gly Gly Ala Val Cys Glu Cys				
227	232	237	242	

ccc ggc ggc ttc cag ctc gac gcc tcc cgc gcc cgc tgc gtg gat atc	1605
Pro Gly Gly Phe Gln Leu Asp Ala Ser Arg Ala Arg Cys Val Asp Ile	
243 248 253 258	
gac gag tgc cga gag ctg aac cag cgc ggg ctg ctg tgc aag agc gag	1653
Asp Glu Cys Arg Glu Leu Asn Gln Arg Gly Leu Leu Cys Lys Ser Glu	
259 264 269 274	
cgc tgc gtg aac acc agc ggc tcc ttc cgc tgc gtc tgc aaa gcc ggc	1701
Arg Cys Val Asn Thr Ser Gly Ser Phe Arg Cys Val Cys Lys Ala Gly	
275 280 285 290	
ttc gcg cgc agc cgc ccg cac ggg gcc tgc gtt ccc cag cgc cgc cgc	1749
Phe Ala Arg Ser Arg Pro His Gly Ala Cys Val Pro Gln Arg Arg Arg	
291 296 301 306	
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tttctgtgaa a atg tca gtt ttg ata tca cag agc gtc ata aat tat gta	230
Met Ser Val Leu Ile Ser Gln Ser Val Ile Asn Tyr Val	
1 5 10	
 gag gaa gaa aac att cct gct ctg aaa gct ctt ctt gaa aaa tgc aaa	278
Glu Glu Glu Asn Ile Pro Ala Leu Lys Ala Leu Leu Glu Lys Cys Lys	
14 19 24 29	
 gat gta gat gag aga aat gag tgt ggc cag act cca ctg atg ata gct	326
Asp Val Asp Glu Arg Asn Glu Cys Gly Gln Thr Pro Leu Met Ile Ala	
30 35 40 45	
 gcc gaa caa ggc aat ctg gaa ata gtg aag gaa tta att aag aat gga	374
Ala Glu Gln Gly Asn Leu Glu Ile Val Lys Glu Leu Ile Lys Asn Gly	
46 51 56 61	
 gct aac tgc aat ctg gaa gat ttg gat aat tgg aca gca ctt ata tct	422
Ala Asn Cys Asn Leu Glu Asp Leu Asp Asn Trp Thr Ala Leu Ile Ser	
62 67 72 77	
 gca tcg aaa gaa ggg cat gtg cac atc gta gag gaa cta ctg aaa tgt	470
Ala Ser Lys Glu Gly His Val His Ile Val Glu Glu Leu Leu Lys Cys	
78 83 88 93	
 ggg gtt aac ttg gag cac cgt gat atg gga gga tgg aca gct ctt atg	518
Gly Val Asn Leu Glu His Arg Asp Met Gly Gly Trp Thr Ala Leu Met	
94 99 104 109	
 tgg gca tgt tac aaa ggc cgt act gac gta gta gag ttg ctt ctt tct	566
Trp Ala Cys Tyr Lys Gly Arg Thr Asp Val Val Glu Leu Leu Leu Ser	
110 115 120 125	
 cat ggt gcc aat cca agt gtc act ggt ctg cag tac agt gtt tac cca	614
His Gly Ala Asn Pro Ser Val Thr Gly Leu Gln Tyr Ser Val Tyr Pro	
126 131 136 141	
 atc att tgg gca gca ggg aga ggc cat gca gat ata gtt cat ctt tta	662
Ile Ile Trp Ala Ala Gly Arg Gly His Ala Asp Ile Val His Leu Leu	
142 147 152 157	
 ctg caa aat ggt gct aaa gtc aac tgc tct gat aag tat gga acc acc	710
Leu Gln Asn Gly Ala Lys Val Asn Cys Ser Asp Lys Tyr Gly Thr Thr	
158 163 168 173	
 cct tta gtt tgg gct gca cga aag ggt cat ttg gaa tgt gtg aaa cat	758
Pro Leu Val Trp Ala Ala Arg Lys Gly His Leu Glu Cys Val Lys His	
174 179 184 189	
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Leu Leu Ala Met Gly Ala Asp Val Asp Gln Glu Gly Ala Asn Ser Met	
190 195 200 205	
 act gca ctt att gtg gca gtg aaa gga ggt tac aca cag tca gta aaa	854
Thr Ala Leu Ile Val Ala Val Lys Gly Gly Tyr Thr Gln Ser Val Lys	
206 211 216 221	

gaa att ttg aag agg aat cca aat gta aac tta aca gat aaa gat gga	902
Glu Ile Leu Lys Arg Asn Pro Asn Val Asn Leu Thr Asp Lys Asp Gly	
222 227 232 237	
aat aca gct ttg atg att gca tca aag gag gga cat acg gag att gtg	950
Asn Thr Ala Leu Met Ile Ala Ser Lys Glu Gly His Thr Glu Ile Val	
238 243 248 253	
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Gln Asp Leu Leu Asp Ala Gly Thr Tyr Val Asn Ile Pro Asp Arg Ser	
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Gly Asp Thr Val Leu Ile Gly Ala Val Arg Gly Gly His Val Glu Ile	
270 275 280 285	
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Val Arg Ala Leu Leu Gln Lys Tyr Ala Asp Ile Asp Ile Arg Gly Gln	
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gat aat aaa act gct ttg tat tgg gct gtt gag aaa gga aat gca aca	1142
Asp Asn Lys Thr Ala Leu Tyr Trp Ala Val Glu Lys Gly Asn Ala Thr	
302 307 312 317	
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318 323 328 333	
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334 339 344 349	
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Glu Val Val Glu Leu Leu Leu Asp Lys Gly Ala Lys Val Ser Ala Val	
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Asp Lys Lys Gly Asp Thr Pro Leu His Ile Ala Ile Arg Gly Arg Ser	
366 371 376 381	
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Arg Lys Leu Ala Glu Leu Leu Leu Arg Asn Pro Lys Asp Gly Arg Leu	
382 387 392 397	
ctt tat agg ccc aac aaa gca ggc gag act cct tat aat att gac tgt	1430
Leu Tyr Arg Pro Asn Lys Ala Gly Glu Thr Pro Tyr Asn Ile Asp Cys	
398 403 408 413	
agc cat cag aag agt att tta act caa ata ttt gga gcc aga cac ttg	1478
Ser His Gln Lys Ser Ile Leu Thr Gln Ile Phe Gly Ala Arg His Leu	
414 419 424 429	
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Ser Pro Thr Glu Thr Asp Gly Asp Met Leu Gly Tyr Asp Leu Tyr Ser	
430 435 440 445	
agt gcc ctg gca gat att ctc agt gag cct acc atg cag cca ccc att	1574

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686		691		696		701		
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	Gly Leu Ala Phe Val		Leu Asn Cys Arg Thr		Trp Trp Gln Val Leu		Asp	
702		707		712		717		
	tcg ctc ctg aat tcc		caa aga aaa cgc ctc		cat aat gca gcc tcc		aaa	2390
	Ser Leu Leu Asn Ser		Gln Arg Lys Arg Leu		His Asn Ala Ala Ser		Lys	
718		723		728		733		
	ctg cac aaa ttg aaa		agt gaa gga ttc atg		aaa gtt ctt aaa tgt		gaa	2438
	Leu His Lys Leu Lys		Ser Glu Gly Phe Met		Lys Val Leu Lys Cys		Glu	
734		739		744		749		
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	Val Glu Leu Met Ala		Arg Met Ala Lys Thr		Ile Asp Ser Phe Thr		Gln	
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	Asn Gln Thr Arg Leu		Val Val Ile Ile Asp		Gly Leu Asp Ala Cys		Glu	
766		771		776		781		
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	Gln Asp Lys Val Leu		Gln Met Leu Asp Thr		Val Arg Val Leu Phe		Ser	
782		787		792		797		
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	Lys Gly Pro Phe Ile		Ala Ile Phe Ala Ser		Asp Pro His Ile Ile		Ile	
798		803		808		813		
	aag gca att aac cag		aac ctc aat agt gtg		ctt cgg gat tca aat		ata	2678
	Lys Ala Ile Asn Gln		Asn Leu Asn Ser Val		Leu Arg Asp Ser Asn		Ile	
814		819		824		829		
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	Asn Gly His Asp Tyr		Met Arg Asn Ile Val		His Leu Pro Val Phe		Leu	
830		835		840		845		
	aat agt cgt gga cta		agc aat gca aga aaa		ttt ctc gta act tca		gca	2774
	Asn Ser Arg Gly Leu		Ser Asn Ala Arg Lys		Phe Leu Val Thr Ser		Ala	
846		851		856		861		
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	Thr Asn Gly Asp Val		Pro Cys Ser Asp Thr		Thr Gly Ile Gln Glu		Asp	
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	Ala Asp Arg Arg Val		Ser Gln Asn Ser Leu		Gly Glu Met Thr Lys		Leu	
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	Gly Ser Lys Thr Ala		Leu Asn Arg Arg Asp		Thr Tyr Arg Arg Arg		Gln	
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Arg Leu Leu Asn Ile Val Ser Val Thr Gly Arg Leu Leu Arg Ala Asn	
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Gln Ile Ser Phe Asn Trp Asp Arg Leu Ala Ser Trp Ile Asn Leu Thr	
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Glu Gln Trp Pro Tyr Arg Thr Ser Trp Leu Ile Leu Tyr Leu Glu Glu	
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Thr Glu Gly Ile Pro Asp Gln Met Thr Leu Lys Thr Ile Tyr Glu Arg	
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Ile Ser Lys Asn Ile Pro Thr Thr Lys Asp Val Glu Pro Leu Leu Glu	
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Asn Leu Asp Pro Lys Leu Arg Glu Ile Ile Ala Asp Val Arg Ala Ala	
1054 1059 1064 1069	
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Arg Glu Gln Ile Ser Ile Gly Gly Leu Ala Tyr Pro Pro Leu Pro Leu	
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Val Cys Ser Ser Thr Ser Phe Asn Gly Pro Phe Ala Gly Gly Val Val	
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Ser Pro Gln Pro His Ser Ser Tyr Tyr Ser Gly Met Thr Gly Pro Gln	
1118 1123 1128 1133	

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His Pro Phe Tyr Asn Arg Gly Ser Gly Pro Ala Pro Gly Pro Val Val	
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Lys Lys Ala Asn Ile Asn Gly Arg Val Leu Ala Gln Cys Asn Ile Asp	
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Gly Glu Pro Ala Arg Arg Ala Ser His Asn Glu Leu Pro His Thr Glu	
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Trp Gln Ser Gln Thr Arg Arg Thr Pro Ser Leu Ser Ser Leu Asn Ser	
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Ser Thr Tyr Tyr Met Gly Gln Ser Ser Ser Gly Gly Ser Ile His Ser	
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Gly Arg Lys Ser Phe Leu Met Lys Arg Gly Asp Val Ile Asp Tyr Ser	
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Lys Gly Ser Gly Leu Arg Tyr Gln Lys Leu Pro Ser Asp Glu Asp Glu	
1454 1459 1464 1469	
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Ser Gly Thr Glu Glu Ser Asp Asn Thr Pro Leu Leu Lys Asp Asp Lys	
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His Ser Ala Glu Pro Ile Arg Thr Phe Ile Lys Ala Lys Glu Tyr Leu	
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Ser Asp Ala Leu Leu Asp Lys Lys Asp Ser Ser Asp Ser Gly Val Arg	
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Ser Ser Glu Ser Ser Pro Asn His Ser Leu His Asn Glu Val Ala Asp	
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Asn Asn Asn Ser Ala Pro Ala Asn Arg Ala Asn Gln Asn Phe Asp Glu				
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Met Glu Gly Ile Arg Glu Thr Ser Gln Val Ile Leu Arg Pro Ser Ser				
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Ser Pro Asn Pro Thr Thr Ile Gln Asn Glu Asn Leu Lys Ser Met Thr				
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His Lys Arg Ser Gln Arg Ser Ser Tyr Thr Arg Leu Ser Lys Asp Pro				
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Glu Arg Glu Ser Ile Leu *				
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 aacaactgga actcaaagct tgaaattctg tggcaaaaaca tgagatgtcc aggattggag 360
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cacagcc atg gac tcc aga ttt cca gat ttt caa gac ctg gac ctg gaa 469
 Met Asp Ser Arg Phe Pro Asp Phe Gln Asp Leu Asp Leu Glu
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 Pro Glu Arg Ala Cys His Asp Ala Ala Gly Thr Leu Glu Val Asp Phe
 15 20 25 30

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 Phe Leu Phe Leu Asn Phe Gly Thr Val Asp Leu Ala Val Arg Lys Glu
 31 36 41 46

aca acg act gag caa gca cta cca cca gca ctg tta ctg gga att aga 613
 Thr Thr Thr Glu Gln Ala Leu Pro Pro Ala Leu Leu Leu Gly Ile Arg
 47 52 57 62

aga cct gag ttt ctg tcc aga ccc tca gtg caa act gag gat gct cca 661

Arg	Pro	Glu	Phe	Leu	Ser	Arg	Pro	Ser	Val	Gln	Thr	Glu	Asp	Ala	Pro	
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Ser	Lys	Val	Asn	Tyr	Val	Leu	Cys	Leu	Leu	Ile	Ala	Glu	Cys	Ser	Pro	
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gga	cct	tct	gac	tac	ctt	ccc	tgt	gct	att	cca	tca	gcc	tac	aga	cct	757
Gly	Pro	Ser	Asp	Tyr	Leu	Pro	Cys	Ala	Ile	Pro	Ser	Ala	Tyr	Arg	Pro	
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Gly	Thr	Trp	Ile	Phe	Ala	Arg	Asp	Asp	Ser	Tyr	His	Leu	Thr	Thr	Asp	
111					116					121					126	
gaa	gac	acc	cat	tcc	agt	gga	cca	ctg	tga	c	ccaggaggca	ttcagccatc				856
Glu	Asp	Thr	His	Ser	Ser	Gly	Pro	Leu	*							
127					132											
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			Met	Lys	Asp	Lys	Val	Phe	Ser	Glu	Val					
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Ser	Pro	Leu	Tyr	Thr	Pro	Phe	Thr	Lys	Pro	Ala	Ser	Leu	Phe	Ser	Ser	
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Ser	Leu	Arg	Cys	Ala	Asp	Leu	Thr	Leu	Pro	Glu	Asp	Ile	Ser	Gln	Leu	
26					31					36					41	
tgt	aaa	gat	ata	aat	aat	gat	tac	ctg	gca	gaa	aga	tct	att	gaa	gaa	435

Cys	Lys	Asp	Ile	Asn	Asn	Asp	Tyr	Leu	Ala	Glu	Arg	Ser	Ile	Glu	Glu		
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Val	Tyr	Tyr	Leu	Trp	Cys	Leu	Ala	Gly	Gly	Asp	Leu	Glu	Lys	Glu	Leu		
58					63					68					73		
gtc	aac	aag	gaa	atc	att	cga	tcc	aaa	cca	cct	atc	tgc	aca	ctc	ccc		531
Val	Asn	Lys	Glu	Ile	Ile	Arg	Ser	Lys	Pro	Pro	Ile	Cys	Thr	Leu	Pro		
74					79					84					89		
aat	ttt	ctc	ttt	gag	gat	ggt	gaa	agc	ttt	gga	caa	ggt	cga	gat	aga		579
Asn	Phe	Leu	Phe	Glu	Asp	Gly	Glu	Ser	Phe	Gly	Gln	Gly	Arg	Asp	Arg		
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agc	tcg	ctt	tta	gat	gat	acc	act	gtg	aca	ttg	tcg	tta	tgc	cag	cta		627
Ser	Ser	Leu	Leu	Asp	Asp	Thr	Thr	Val	Thr	Leu	Ser	Leu	Cys	Gln	Leu		
106					111					116					121		
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Arg	Asn	Arg	Leu	Lys	Asp	Val	Gly	Gly	Glu	Ala	Phe	Tyr	Pro	Leu	Leu		
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gaa	gat	gac	cag	tct	aat	tta	cct	cat	tca	aac	agc	aat	aat	gag	ttg		723
Glu	Asp	Asp	Gln	Ser	Asn	Leu	Pro	His	Ser	Asn	Ser	Asn	Asn	Glu	Leu		
138					143					148					153		
tct	gca	gct	gcc	acg	ctc	cct	tta	atc	atc	aga	gag	aag	gat	aca	gag		771
Ser	Ala	Ala	Ala	Thr	Leu	Pro	Leu	Ile	Ile	Arg	Glu	Lys	Asp	Thr	Glu		
154					159					164					169		
tac	caa	cta	aat	aga	att	att	ctc	ttc	gac	agg	ctg	cta	aag	gct	tat		819
Tyr	Gln	Leu	Asn	Arg	Ile	Ile	Leu	Phe	Asp	Arg	Leu	Leu	Lys	Ala	Tyr		
170					175					180					185		
cca	tat	aaa	aaa	aac	caa	atc	tgg	aaa	gaa	gca	aga	ggt	gac	att	cct		867
Pro	Tyr	Lys	Lys	Asn	Gln	Ile	Trp	Lys	Glu	Ala	Arg	Val	Asp	Ile	Pro		
186					191					196					201		
cct	ctt	atg	aga	ggt	tta	acc	tgg	gct	gct	ctt	ctg	gga	ggt	gag	gga		915
Pro	Leu	Met	Arg	Gly	Leu	Thr	Trp	Ala	Ala	Leu	Leu	Gly	Val	Glu	Gly		
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gct	att	cat	gcc	aag	tac	gat	gca	att	gat	aaa	gac	act	cca	att	cct		963
Ala	Ile	His	Ala	Lys	Tyr	Asp	Ala	Ile	Asp	Lys	Asp	Thr	Pro	Ile	Pro		
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Thr	Asp	Arg	Gln	Ile	Glu	Val	Asp	Ile	Pro	Arg	Cys	His	Gln	Tyr	Asp		
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Glu	Leu	Leu	Ser	Ser	Pro	Glu	Gly	His	Ala	Lys	Phe	Arg	Arg	Val	Leu		
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Leu Ala Tyr Ala Cys Met Ser Ala Phe Ile Pro Lys Tyr Leu Tyr Asn				
298	303	308	313	
ttc ttc tta aaa gac aac tca cat gta ata caa gag tat ctg act gtc				1251
Phe Phe Leu Lys Asp Asn Ser His Val Ile Gln Glu Tyr Leu Thr Val				
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Phe Ser Gln Met Ile Ala Phe His Asp Pro Glu Leu Ser Asn His Leu				
330	335	340	345	
aat gag att ggt ttc att cca gat ctc tat gcc atc cct tgg ttt ctt				1347
Asn Glu Ile Gly Phe Ile Pro Asp Leu Tyr Ala Ile Pro Trp Phe Leu				
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acc atg ttt act cat gta ttt cca cta cac aaa att ttc cac ctc tgg				1395
Thr Met Phe Thr His Val Phe Pro Leu His Lys Ile Phe His Leu Trp				
362	367	372	377	
gat acc tta cta ctt ggg aat tcc tct ttc cca ttc tgt att ggg agt				1443
Asp Thr Leu Leu Leu Gly Asn Ser Ser Phe Pro Phe Cys Ile Gly Ser				
378	383	388	393	
agc aat tct tca ggc agc tgc ggg acc ggc ttt tgg gct aat ggc ttt				1491
Ser Asn Ser Ser Gly Ser Cys Gly Thr Gly Phe Trp Ala Asn Gly Phe				
394	399	404	409	
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Asn Glu Cys Ile Leu Leu Phe Ser Asp Leu Pro Glu Ile Asp Ile Glu				
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Arg Cys Val Arg Glu Ser Ile Asn Leu Phe Cys Trp Thr Pro Lys Ser				
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gct act tac aga cag cat gct caa cct cca aag cca tct tct gac agc				1635
Ala Thr Tyr Arg Gln His Ala Gln Pro Pro Lys Pro Ser Ser Asp Ser				
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Ser Gly Gly Arg Ser Ser Ala Pro Tyr Phe Ser Ala Glu Cys Pro Asp				
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cct cca aag aca gat ctg tca aga gaa tcc atc cca tta aat gac ctg				1731
Pro Pro Lys Thr Asp Leu Ser Arg Glu Ser Ile Pro Leu Asn Asp Leu				
474	479	484	489	
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Lys Ser Glu Val Ser Pro Arg Ile Ser Ala Glu Asp Leu Ile Asp Leu				
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Cys Glu Leu Thr Val Thr Gly His Phe Lys Thr Pro Ser Lys Lys Thr	
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Asp Phe Ile Arg Gly His Ile Ser Gly Ser Ile Asn Ile Pro Phe Ser	
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Ala Ala Phe Thr Ala Glu Gly Glu Leu Thr Gln Gly Pro Tyr Thr Ala	
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Met Leu Gln Asn Phe Lys Gly Lys Val Ile Val Ile Val Gly His Val	
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Leu Asp Pro Gly Thr Arg Asp Ser Tyr Gly Ala Thr Ser His Leu Pro
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aac aag ggg gcc ctg gcg aag gtc aag aac aac ttc aaa gac ttg atg   150
Asn Lys Gly Ala Leu Ala Lys Val Lys Asn Asn Phe Lys Asp Leu Met
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tcc aaa ctg acg gag ggc cag tat gtg ctg tgc cgg tgg aca gat ggc   198
Ser Lys Leu Thr Glu Gly Gln Tyr Val Leu Cys Arg Trp Thr Asp Gly
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ctg tac tac ctc ggg aag atc aag agg gtc agc agc tct aag caa agc   246
Leu Tyr Tyr Leu Gly Lys Ile Lys Arg Val Ser Ser Ser Lys Gln Ser
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tgc ctc gtg act ttc gaa gat aat tcc aaa tac tgg gtc cta tgg aag   294
Cys Leu Val Thr Phe Glu Asp Asn Ser Lys Tyr Trp Val Leu Trp Lys
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gac ata cag cat gcc ggt gtt cca gga gag gag ccc aag tgc aac atc   342
Asp Ile Gln His Ala Gly Val Pro Gly Glu Glu Pro Lys Cys Asn Ile
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tgc cta ggg aag aca tca ggg ccg ctg aat gag atc ctc atc tgc ggg   390
Cys Leu Gly Lys Thr Ser Gly Pro Leu Asn Glu Ile Leu Ile Cys Gly
  102                      107                      112                      117

aag tgt ggc ctg ggt tac cac cag cag tgc cac atc ccc ata gcg ggc   438
Lys Cys Gly Leu Gly Tyr His Gln Gln Cys His Ile Pro Ile Ala Gly
  118                      123                      128                      133

agt gct gac cag ccc ctg ctc aca cct tgg ttc tgc cga cgc tgc atc   486
Ser Ala Asp Gln Pro Leu Leu Thr Pro Trp Phe Cys Arg Arg Cys Ile
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ttc gca ctg gct gtg cgg aaa ggc ggc gcg ctg aag aag ggc gcc atc   534
Phe Ala Leu Ala Val Arg Lys Gly Gly Ala Leu Lys Lys Gly Ala Ile
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gcc agg acg ctg cag gcc gtg aag atg gtg ctg tcc tac cag ccc gag   582
Ala Arg Thr Leu Gln Ala Val Lys Met Val Leu Ser Tyr Gln Pro Glu
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gag ctc gag tgg gac tcg ccc cat cgc acc aac cag cag caa tgc tac   630
Glu Leu Glu Trp Asp Ser Pro His Arg Thr Asn Gln Gln Gln Cys Tyr
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tgc tac tgc ggc ggg ccc gga gaa tgg tac ctg cgg atg ctg caa tgt				678
Cys Tyr Cys Gly Gly Pro Gly Glu Trp Tyr Leu Arg Met Leu Gln Cys				
198	203	208	213	
tac cgg tgc agg cag tgg ttc cac gag gcc tgc acc cag tgc ctc aat				726
Tyr Arg Cys Arg Gln Trp Phe His Glu Ala Cys Thr Gln Cys Leu Asn				
214	219	224	229	
gag ccc atg atg ttt gga gac cgg ttt tac ctg ttc ttc tgc tcc gtg				774
Glu Pro Met Met Phe Gly Asp Arg Phe Tyr Leu Phe Phe Cys Ser Val				
230	235	240	245	
tgt aac cag ggc cca gag tac atc gag agg ctg ccc ctg cga tgg gtg				822
Cys Asn Gln Gly Pro Glu Tyr Ile Glu Arg Leu Pro Leu Arg Trp Val				
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Asp Val Val His Leu Ala Leu Tyr Asn Leu Gly Val Gln Ser Lys Lys				
262	267	272	277	
aag tac ttt gac ttt gag gag att ctg gcc ttt gtc aac cac cac tgg				918
Lys Tyr Phe Asp Phe Glu Glu Ile Leu Ala Phe Val Asn His His Trp				
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Glu Leu Leu Gln Leu Gly Lys Leu Thr Ser Thr Pro Val Thr Asp Arg				
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Gly Pro His Leu Leu Asn Ala Leu Asn Ser Tyr Lys Ser Arg Phe Leu				
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Cys Gly Lys Glu Ile Lys Lys Lys Lys Cys Ile Phe Arg Leu Arg Ile				
326	331	336	341	
cgc gtc cca ccc aac ccg cca ggg aag ctg ctg cct gac aaa gga ctg				1110
Arg Val Pro Pro Asn Pro Pro Gly Lys Leu Leu Pro Asp Lys Gly Leu				
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ctg cca aat gag aac agc gcc tcc tct gag ctg cgt aag aga gga aag				1158
Leu Pro Asn Glu Asn Ser Ala Ser Ser Glu Leu Arg Lys Arg Gly Lys				
358	363	368	373	
agc aag cct ggt ttg ttg cct cac gaa ttc cag cag cag aaa agg cga				1206
Ser Lys Pro Gly Leu Leu Pro His Glu Phe Gln Gln Gln Lys Arg Arg				
374	379	384	389	
gtt tat aga aga aaa aga tca aag ttt ttg ctg gaa gat gct att ccc				1254
Val Tyr Arg Arg Lys Arg Ser Lys Phe Leu Leu Glu Asp Ala Ile Pro				
390	395	400	405	
agt agt gac ttc acc tca gcc tgg agc acc aac cac cac ctg gct agc				1302
Ser Ser Asp Phe Thr Ser Ala Trp Ser Thr Asn His His Leu Ala Ser				
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Met Ser Ser Leu Gly
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Leu Val Ala Cys Phe Pro Ser Ala Ile Ala Ser His Val Ala Ala Glu	
236 241 246 251	
tgt ccc agc aag tgt ctg gtg gag gtc ctg att gcc ata agc agc ctc	1119
Cys Pro Ser Lys Cys Leu Val Glu Val Leu Ile Ala Ile Ser Ser Leu	
252 257 262 267	
acg tct ccg ctg ctg ttc aca gcc tct gga tat ctg tca ttc agc atc	1167
Thr Ser Pro Leu Leu Phe Thr Ala Ser Gly Tyr Leu Ser Phe Ser Ile	
268 273 278 283	
atg aga atc gtg gag atg ttt aag gat tac ccg cca gcc ata aaa cca	1215
Met Arg Ile Val Glu Met Phe Lys Asp Tyr Pro Pro Ala Ile Lys Pro	
284 289 294 299	
tcc tac gat gtg ctg ctg ctg ctg ctg ctg cta gtg ctc ctg ctg cag	1263

Ser Tyr Asp Val Leu Leu Leu Leu Leu Leu Val Leu Leu Leu Gln	
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gcc gcc ctc aac acg gcc acc gcc atc cag tgc gtg cgc ttc aag gtc	1311
Ala Gly Leu Asn Thr Gly Thr Ala Ile Gln Cys Val Arg Phe Lys Val	
316 321 326 331	
agt gca agg ctg cag ggt gca tcc tgg gac acc cag aac gcc ccg cag	1359
Ser Ala Arg Leu Gln Gly Ala Ser Trp Asp Thr Gln Asn Gly Pro Gln	
332 337 342 347	
gag cgc ctg gct ggg gag gtg gcc agg agc ccc ctg aag gag ttc gac	1407
Glu Arg Leu Ala Gly Glu Val Ala Arg Ser Pro Leu Lys Glu Phe Asp	
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Lys Glu Lys Ala Trp Arg Ala Val Val Val Gln Met Ala Gln *	
364 369 374	
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gagcgcagga	ctgggcggcc tgtgtggggg tgtgagccgc ggtgcccaag gctgcgccgg 180
cgaggggaag	ccgcgcggcc ggccggccga ctagggtgag gtcgccactc cttcctttca 240

cat ccc ctg gct tgg att ctg ctg ctg agc ctc atc gtc tgt gtg agc	1024
His Pro Leu Ala Trp Ile Leu Leu Leu Ser Leu Ile Val Cys Val Ser	
215 220 225 230	
aca cag att aat tac cta aat agg gcc ctg gat ata ttc aac act tcc	1072
Thr Gln Ile Asn Tyr Leu Asn Arg Ala Leu Asp Ile Phe Asn Thr Ser	
231 236 241 246	
att gtg act cca ata tat tat gta ttc ttt aca aca tca gtt tta act	1120
Ile Val Thr Pro Ile Tyr Tyr Val Phe Phe Thr Thr Ser Val Leu Thr	
247 252 257 262	
tgt tca gct att ctt ttt aag gag tgg caa gat atg cct gtt gac gat	1168
Cys Ser Ala Ile Leu Phe Lys Glu Trp Gln Asp Met Pro Val Asp Asp	
263 268 273 278	
gtc att ggt act ttg agt ggc ttc ttt aca atc att gtg ggg ata ttc	1216
Val Ile Gly Thr Leu Ser Gly Phe Phe Thr Ile Ile Val Gly Ile Phe	
279 284 289 294	
ttg ttg cat gcc ttt aaa gac gtc agc ttt agt cta gca agt ctg cct	1264
Leu Leu His Ala Phe Lys Asp Val Ser Phe Ser Leu Ala Ser Leu Pro	
295 300 305 310	
gtg tct ttt cga aaa gac gag aaa gca atg aat ggc aat ctc tct aat	1312
Val Ser Phe Arg Lys Asp Glu Lys Ala Met Asn Gly Asn Leu Ser Asn	
311 316 321 326	
atg tat gaa gtt ctt aat aat aat gaa gaa agc tta acc tgt gga atc	1360
Met Tyr Glu Val Leu Asn Asn Asn Glu Glu Ser Leu Thr Cys Gly Ile	
327 332 337 342	
gaa caa cac act ggt gaa aat gtc tcc cga aga aat gga aat ctg aca	1408
Glu Gln His Thr Gly Glu Asn Val Ser Arg Asn Gly Asn Leu Thr	
343 348 353 358	
gct ttt taa gaaagggt gtaattaaag gttaatctgt gattgttatg aagtgaattt	1464
Ala Phe *	
359	
gaatatcatc agaatgtgtc tgaaaaaaca ttgtcctcaa ataatgttct ttaaaggcaa	1524
tcttttttaaa gatttcacta atttggacca agaaattact tttcttgtat ttaaacaac	1584
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tccccactcc atcaatccct gaccatgtaa ggctttttta ttttaaaaaa acagagttat	1824
cccaatacat tctcctgtga tttaccttac ctacaaaagt ggctcctgtt tgtttggatga	1884
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ctcttttctta caaaacaaaa aaaagggcag aaatcacccc aaggaacgat ttctcaggtt 2004
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ttcataatga gttatatgtt catttagact ttgaacagct ctgggaaata gaagactagg 2244
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<213> Homo sapiens

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<222> (50) .. (1174)

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Met Pro
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cga agg aag caa agc cac ccg cag ccc gtg aaa tgc gag ggg gtc aaa 103
Arg Arg Lys Gln Ser His Pro Gln Pro Val Lys Cys Glu Gly Val Lys
3 8 13 18
gtg gat act gaa gac tcc ctc gac gaa gga ccc ggg gcc ctg gta ttg 151
Val Asp Thr Glu Asp Ser Leu Asp Glu Gly Pro Gly Ala Leu Val Leu
19 24 29 34
gag agt gat ttg cta cta ggc cag gat ctg gag ttt gag gag gaa gag 199
Glu Ser Asp Leu Leu Leu Gly Gln Asp Leu Glu Phe Glu Glu Glu Glu
35 40 45 50
gaa gag gag gaa ggc gac ggc aac agt gac cag ctc atg ggc ttc gag 247
Glu Glu Glu Glu Gly Asp Gly Asn Ser Asp Gln Leu Met Gly Phe Glu
51 56 61 66
aga gac tcg gaa gga gac tct ctg ggg gcc agg cct ggg ctt ccc tat 295
Arg Asp Ser Glu Gly Asp Ser Leu Gly Ala Arg Pro Gly Leu Pro Tyr
67 72 77 82
ggg ctg agc gac gat gag tct ggg ggc ggc cgg gca cta agt gcg gag 343
Gly Leu Ser Asp Asp Glu Ser Gly Gly Gly Arg Ala Leu Ser Ala Glu
83 88 93 98
agt gaa gtt gag gag cca gcc agg ggt cca ggg gag gcc agg ggt gag 391
Ser Glu Val Glu Glu Pro Ala Arg Gly Pro Gly Glu Ala Arg Gly Glu
99 104 109 114

agg cca ggc cca gcc tgc cag ctg tgt ggg ggg ccg aca gat ttg agc	439
Arg Pro Gly Pro Ala Cys Gln Leu Cys Gly Gly Pro Thr Asp Leu Ser	
115 120 125 130	
ctc cat gtg cca cca ggt ggt gcc agt ttc ctg cca gac tgt ggg cag	487
Leu His Val Pro Pro Gly Gly Ala Ser Phe Leu Pro Asp Cys Gly Gln	
131 136 141 146	
ctg cgg ggt gaa ggg gag ggc ctc tgc ggg act gga tca gaa cca ctg	535
Leu Arg Gly Glu Gly Glu Gly Leu Cys Gly Thr Gly Ser Glu Pro Leu	
147 152 157 162	
cca gag ctg cta ttc cct tgg acc tgc cgg ggc tgt gga cca gag ctg	583
Pro Glu Leu Leu Phe Pro Trp Thr Cys Arg Gly Cys Gly Gln Glu Leu	
163 168 173 178	
gag gag ggt gag ggt agt cgg ctg gga gct gcc atg tgt ggg cgc tgc	631
Glu Glu Gly Glu Gly Ser Arg Leu Gly Ala Ala Met Cys Gly Arg Cys	
179 184 189 194	
atg cga gga gag gct gga ggg ggt gcc agt ggg ggg ccc cag ggc ccc	679
Met Arg Gly Glu Ala Gly Gly Gly Ala Ser Gly Gly Pro Gln Gly Pro	
195 200 205 210	
agt gac aaa ggc ttt gcc tgt agc ctc tgc ccc ttt gcc act cac tat	727
Ser Asp Lys Gly Phe Ala Cys Ser Leu Cys Pro Phe Ala Thr His Tyr	
211 216 221 226	
ccc aac cac ctg gcc cgg cac atg aag aca cac agt ggt gag aag ccc	775
Pro Asn His Leu Ala Arg His Met Lys Thr His Ser Gly Glu Lys Pro	
227 232 237 242	
ttc cgc tgc gcc cgc tgt cct tat gcc tct gct cat ctg gat aac ctg	823
Phe Arg Cys Ala Arg Cys Pro Tyr Ala Ser Ala His Leu Asp Asn Leu	
243 248 253 258	
aaa cgg cac cag cgc gtc cat aca gga gag aag ccc tac aag tgc ccc	871
Lys Arg His Gln Arg Val His Thr Gly Glu Lys Pro Tyr Lys Cys Pro	
259 264 269 274	
ctc tgc cct tat gcc tgt ggc aat ctg gcc aac ctc aag cgt cat ggt	919
Leu Cys Pro Tyr Ala Cys Gly Asn Leu Ala Asn Leu Lys Arg His Gly	
275 280 285 290	
cgc atc cac tct ggt gac aaa cct ttt cgg tgt agc ctt tgc aac tac	967
Arg Ile His Ser Gly Asp Lys Pro Phe Arg Cys Ser Leu Cys Asn Tyr	
291 296 301 306	
agc tgc aac cag agc atg aac ctc aaa cgt cac atg ctg cgg cac aca	1015
Ser Cys Asn Gln Ser Met Asn Leu Lys Arg His Met Leu Arg His Thr	
307 312 317 322	
ggc gag aag cct tcc gct gtg cca cct gcg cct ata cca cgg gcc act	1063
Gly Glu Lys Pro Ser Ala Val Pro Pro Ala Pro Ile Pro Arg Ala Thr	
323 328 333 338	
ggg aca act aca agc gcc acc aga agg tgc atg gcc acg gtg ggg cag	1111

Gly Thr Thr Thr Ser Ala Thr Arg Arg Cys Met Ala Thr Val Gly Gln	
339 344 349 354	
gag ggc ctg gtc tct ctg cct ctg agg gct ggg ccc cac ctc ata gcc	1159
Glu Gly Leu Val Ser Leu Pro Leu Arg Ala Gly Pro His Leu Ile Ala	
355 360 365 370	
cac cct ctg ttt tga gctctcgggg cccaccagcc ctggggactg ctggcagccg	1214
His Pro Leu Phe *	
371	
ggctgtccac acagactcat cctgaactag gtcctttcttc cccatgtttt atacagacgg	1274
accagaagcc acctttttct cccccgctgg ccaggggctc cacacagact aacgtaggca	1334
ctataaggac cagcccaacc ccatgggcgg gggggcccat atggaccagg ggaccttgcc	1394
ttgactgagg cacttcacga gctcagttag aagggcctg tattcacctc cactgcccc	1454
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tttcagtgtt ttataataaa ggaaacacta acaaaaaaaaa aaaa	1558

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 <212> DNA
 <213> Homo sapiens

 <220>
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 <222> (173)..(874)

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gctcagcttt ccaatcagct gcggaaggag ccacgcttcc ggggggtgca ag	175
	atg Met 1
gcg gcc acc agt gga act gat gag ccg gtt tcc ggg gag ttg gtg tct	223
Ala Ala Thr Ser Gly Thr Asp Glu Pro Val Ser Gly Glu Leu Val Ser	
2 7 12 17	
gtg gca cat gcg ctt tct ctc cca gca gag tcg tat ggc aac gat cct	271
Val Ala His Ala Leu Ser Leu Pro Ala Glu Ser Tyr Gly Asn Asp Pro	
18 23 28 33	
gac att gag atg gct tgg gcc atg aga gca atg cag cat gct gaa gtc	319
Asp Ile Glu Met Ala Trp Ala Met Arg Ala Met Gln His Ala Glu Val	
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<210> 34
 <211> 1206
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (135)..(965)

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 atggccccctt ccag atg cct ctt tgc aat ggt gga aat ttg gca gta aca 170
 Met Pro Leu Cys Asn Gly Gly Asn Leu Ala Val Thr
 1 5 10
 ggt tcc tgg gca gat cga tca cca cta cat gaa gca gca agt caa ggt 218
 Gly Ser Trp Ala Asp Arg Ser Pro Leu His Glu Ala Ala Ser Gln Gly
 13 18 23 28
 cgc ctt ctt gct ctg aga aca tta tta tca cag ggt tat aat gta aat 266
 Arg Leu Leu Ala Leu Arg Thr Leu Leu Ser Gln Gly Tyr Asn Val Asn
 29 34 39 44
 gca gta acc tta gac cat gtc acc cca ttg cac gaa gcc tgc ctt gga 314
 Ala Val Thr Leu Asp His Val Thr Pro Leu His Glu Ala Cys Leu Gly
 45 50 55 60
 gat cac gtg gca tgt gcc aga act ctg ctg gaa gca gga gct aat gta 362
 Asp His Val Ala Cys Ala Arg Thr Leu Leu Glu Ala Gly Ala Asn Val
 61 66 71 76
 aat gca atc acg ata gat ggc gtg act ccg tta ttc aac gca tgc tcc 410
 Asn Ala Ile Thr Ile Asp Gly Val Thr Pro Leu Phe Asn Ala Cys Ser
 77 82 87 92
 caa ggc agt cca agc tgt gca gag ctg ctt ctg gag tat ggt gcc aaa 458
 Gln Gly Ser Pro Ser Cys Ala Glu Leu Leu Leu Glu Tyr Gly Ala Lys
 93 98 103 108
 gcc cag ctg gag tca tgt ctt cca tcc cca acg cat gag gcc gcc agt 506
 Ala Gln Leu Glu Ser Cys Leu Pro Ser Pro Thr His Glu Ala Ala Ser
 109 114 119 124
 aaa ggt cac cat gaa tgt ctt gac atc ctg ata tcc tgg ggc ata gat 554
 Lys Gly His His Glu Cys Leu Asp Ile Leu Ile Ser Trp Gly Ile Asp
 125 130 135 140
 gtt gac caa gaa att cct cat ttg gga act cct ctc tat gta gct tgt 602
 Val Asp Gln Glu Ile Pro His Leu Gly Thr Pro Leu Tyr Val Ala Cys
 141 146 151 156

atg tca cag caa ttc cat tgc atc tgg aag ctt ctt tat gct ggt gct	650
Met Ser Gln Gln Phe His Cys Ile Trp Lys Leu Leu Tyr Ala Gly Ala	
157 162 167 172	
gac gta cag aaa ggc aaa tat tgg gat act cca tta cat gct gct gct	698
Asp Val Gln Lys Gly Lys Tyr Trp Asp Thr Pro Leu His Ala Ala Ala	
173 178 183 188	
caa caa tcc agc aca gaa att gta aac tta ctg cta gaa ttt gga gca	746
Gln Gln Ser Ser Thr Glu Ile Val Asn Leu Leu Leu Glu Phe Gly Ala	
189 194 199 204	
gat atc aat gcc aaa aat aca gag ctt ctg cga cct ata gat gta gct	794
Asp Ile Asn Ala Lys Asn Thr Glu Leu Leu Arg Pro Ile Asp Val Ala	
205 210 215 220	
acg tct agc agt atg gtg gaa aga ata ttg ctt caa cat gaa gct acc	842
Thr Ser Ser Ser Met Val Glu Arg Ile Leu Leu Gln His Glu Ala Thr	
221 226 231 236	
cca agc tct ctt tac caa ctt tgc cga ctc tgt atc cga agc tac ata	890
Pro Ser Ser Leu Tyr Gln Leu Cys Arg Leu Cys Ile Arg Ser Tyr Ile	
237 242 247 252	
gga aaa cca aga ttg cac ctt atc cca caa ctc cag ctg cca acg tta	938
Gly Lys Pro Arg Leu His Leu Ile Pro Gln Leu Gln Leu Pro Thr Leu	
253 258 263 268	
ctg aag aat ttc tta cag tat cga taa aacag taaagtaatt ctaaatacct	990
Leu Lys Asn Phe Leu Gln Tyr Arg *	
269 274	
tgaaaatcaa aatttctatt tcttttgctt aaggaatagt tcatataaaa atatgctaaa	1050
gataggataa aagtgagtgt gagatcacc agggaagcag taaaatatca attttcattt	1110
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<220>
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Arg Val Arg Ser Leu Asp Leu Asp Asp Trp Pro Pro Glu Leu Leu Ala	
166 171 176 181	
gtc atg act gcc atg ggc aat gcc ctc gcc aac agc gtc tgg gag ggg	1110
Val Met Thr Ala Met Gly Asn Ala Leu Ala Asn Ser Val Trp Glu Gly	
182 187 192 197	
gcc ttg ggt ggc tac tcc aag cca ggg cct gat gcc tgc aga gag gag	1158
Ala Leu Gly Gly Tyr Ser Lys Pro Gly Pro Asp Ala Cys Arg Glu Glu	
198 203 208 213	
aag gaa cgc tgg ata cgg gcc aag tat gaa cag aag ctc ttc ctg gcc	1206
Lys Glu Arg Trp Ile Arg Ala Lys Tyr Glu Gln Lys Leu Phe Leu Ala	
214 219 224 229	
cca ctg cca agc tca gat gtg cca ctg ggg cag cag ctg ctc cgg gcc	1254
Pro Leu Pro Ser Ser Asp Val Pro Leu Gly Gln Gln Leu Leu Arg Ala	
230 235 240 245	
gtg gtg gaa gat gac ctg cgg ctg ttg gtg atg ctc ctg gca cat ggc	1302
Val Val Glu Asp Asp Leu Arg Leu Leu Val Met Leu Leu Ala His Gly	
246 251 256 261	
tcc aaa gag gag gtg aat gag acc tat ggg gac ggg gac ggg cgg acg	1350
Ser Lys Glu Glu Val Asn Glu Thr Tyr Gly Asp Gly Asp Gly Arg Thr	
262 267 272 277	
gct cta cat ctc tcc agt gcc atg gcc aac gtt gtc ttc acg cag ctg	1398
Ala Leu His Leu Ser Ser Ala Met Ala Asn Val Val Phe Thr Gln Leu	
278 283 288 293	
ctc atc tgg tac ggg gtg gac gtg agg agc cgg gac gcc cgg ggc ctg	1446
Leu Ile Trp Tyr Gly Val Asp Val Arg Ser Arg Asp Ala Arg Gly Leu	
294 299 304 309	
act cca ctg gca tat gct cgc cgg gcc ggc agc cag gag tgt gca gac	1494
Thr Pro Leu Ala Tyr Ala Arg Arg Ala Gly Ser Gln Glu Cys Ala Asp	
310 315 320 325	
atc ttg atc cag cat ggc tgc cct ggg gag ggc tgt ggc tta gcg cct	1542
Ile Leu Ile Gln His Gly Cys Pro Gly Glu Gly Cys Gly Leu Ala Pro	
326 331 336 341	
acc ccc aac aga gag cct gcc aat ggc acc aac ccc tct gct gag ctg	1590
Thr Pro Asn Arg Glu Pro Ala Asn Gly Thr Asn Pro Ser Ala Glu Leu	
342 347 352 357	
cac cgt agt cct agc ctc cta taa ggcccaggaa gagggcagag gggccagaag	1644
His Arg Ser Pro Ser Leu Leu *	
358 363	
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agaagcaggg acatgctgag aggacgaagc caaggaaatt agggaggaga gtcaaaggga	1764
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ctgtgagtcc catgtaaact ttgtacattg gaatatttat gtttgtgtac atatttgatg 2064
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<210> 36
<211> 1364
<212> DNA
<213> Homo sapiens

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<221> CDS
<222> (48) .. (1364)

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His Leu Phe Ser Gln Val Leu Asp Ile Asn Gln Ala Asp Ala Gly Thr
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Leu Ser Arg Ala Glu Phe Ala Glu Ser Leu Gly Leu Lys Pro Gln Asp
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Tyr Leu Ser Phe Arg Glu Phe Leu Asp Ile Leu Val Val Phe Met Lys
84 89 94 99

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Gly Ser Pro Glu Glu Lys Ser Arg Leu Met Phe Arg Met Tyr Asp Phe
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Asp Gly Asn Gly Leu Ile Ser Lys Asp Glu Phe Ile Arg Met Leu Arg

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Pro Pro Ala Leu Cys Ala Arg Pro Val Lys Glu Pro Arg Gly Leu Ser	
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Leu Pro Pro *	
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Tyr Ser Gln Ser Leu Arg Cys Leu Gln Asp Thr Leu Cys Leu His Gln	
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Leu Glu Ser Leu Lys Ala Thr Cys Glu Arg Gly Phe Ala Ala Met Glu	
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Glu Thr His Gln Lys Lys Ile Glu Asp Leu Gln Arg Gln His Gln Arg	
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Thr Ala Ala Thr Ile Ser Ala Ile Glu Ala Met Lys Asn Ala His Arg	
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Ser Leu Glu Gln Val Pro Lys Glu Ile Phe Thr Phe Glu Lys Thr Leu				
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gag gaa ctc tat tta gat gct aat cag att gaa gag ctt cca aag caa				432
Glu Glu Leu Tyr Leu Asp Ala Asn Gln Ile Glu Glu Leu Pro Lys Gln				
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ctt ttt aac tgt cag tct tta cac aaa ctg agt ttg cca gac aat gat				480
Leu Phe Asn Cys Gln Ser Leu His Lys Leu Ser Leu Pro Asp Asn Asp				
65	70	75	80	
tta aca acg tta cca gca tcc att gca aac ctt att aat ctc agg gaa				528
Leu Thr Thr Leu Pro Ala Ser Ile Ala Asn Leu Ile Asn Leu Arg Glu				
81	86	91	96	
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Leu Asp Val Ser Lys Asn Gly Ile Gln Glu Phe Pro Glu Asn Ile Lys				
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aat tgt aaa gtt ttg aca att gtg gag gcc agt gta aac cct att tcc				624
Asn Cys Lys Val Leu Thr Ile Val Glu Ala Ser Val Asn Pro Ile Ser				
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Lys Leu Pro Asp Gly Phe Ser Gln Leu Leu Asn Leu Thr Gln Leu Tyr				
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Thr Lys Leu Gln Ile Leu Glu Leu Arg Glu Asn Gln Leu Lys Met Leu				
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cct aaa act atg aat aga ctg acc cag ctg gaa aga ttg gat ttg gga				816
Pro Lys Thr Met Asn Arg Leu Thr Gln Leu Glu Arg Leu Asp Leu Gly				
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Phe Ile Gly Ser Leu Lys Gln Leu Thr Tyr Leu Asp Val Ser Lys Asn				
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Asn Ile Glu Met Val Glu Glu Gly Ile Ser Thr Cys Glu Asn Leu Gln				
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Gly Ser Leu Lys Asn Ile Thr Thr Leu Lys Ile Asp Glu Asn Gln Leu	
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Leu Pro Pro Glu Ile Gly Ser Trp Lys Asn Ile Thr Val Leu Phe Leu	
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cat tcc aat aaa ctt gag aca ctt cca gag gaa atg ggt gat atg caa	1344
His Ser Asn Lys Leu Glu Thr Leu Pro Glu Glu Met Gly Asp Met Gln	
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Lys Leu Lys Val Ile Asn Leu Ser Asp Asn Arg Leu Lys Asn Leu Pro	
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Phe Ser Phe Thr Lys Leu Gln Gln Leu Thr Ala Met Trp Leu Ser Asp	
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Thr Glu Asp Val Met Phe Ile Ser Asp Asn Glu Ser Phe Asn Pro Ser	
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Lys Arg Tyr Pro Thr Pro Tyr Pro Asp Glu Leu Lys Asn Met Val Lys	
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Asp	Pro	His	Thr	Gly	Arg	Cys	Asn	Cys	Pro	Pro	Gly	Leu	Ser	Gly	Glu		
31					36					41					46		
cgc	tgc	gac	acc	tgc	agc	cag	cag	cat	cag	gtg	cct	gtt	cca	ggc	ggg		734
Arg	Cys	Asp	Thr	Cys	Ser	Gln	Gln	His	Gln	Val	Pro	Val	Pro	Gly	Gly		
47					52					57					62		
cct	gtg	ggc	cac	agc	atc	cac	tgt	gaa	gtg	tgt	gac	cac	tgt	gtg	gtc		782
Pro	Val	Gly	His	Ser	Ile	His	Cys	Glu	Val	Cys	Asp	His	Cys	Val	Val		
63					68					73					78		
ctg	ctc	ctg	gat	gac	ctg	gaa	cgg	gcc	ggc	gcc	ctc	ctc	ccc	gcc	att		830
Leu	Leu	Leu	Asp	Asp	Leu	Glu	Arg	Ala	Gly	Ala	Leu	Leu	Pro	Ala	Ile		
79					84					89					94		
cac	gag	caa	ctg	cgt	ggc	atc	aac	gcc	agc	tcc	atg	gcc	tgg	gcc	cgt		878
His	Glu	Gln	Leu	Arg	Gly	Ile	Asn	Ala	Ser	Ser	Met	Ala	Trp	Ala	Arg		
95					100					105					110		
ctg	cac	agg	ctg	aac	gcc	tcc	atc	gct	gac	ctg	cag	agc	cag	ctc	cgg		926
Leu	His	Arg	Leu	Asn	Ala	Ser	Ile	Ala	Asp	Leu	Gln	Ser	Gln	Leu	Arg		
111					116					121					126		
agc	ccc	ctg	ggc	ccc	cgc	cat	gag	acg	gca	cag	cag	ctg	gag	gtg	ctg		974
Ser	Pro	Leu	Gly	Pro	Arg	His	Glu	Thr	Ala	Gln	Gln	Leu	Glu	Val	Leu		
127					132					137					142		
gag	cag	cag	agc	aca	agc	ctc	ggg	cag	gac	gca	cgg	cgg	cta	ggc	ggc		1022
Glu	Gln	Gln	Ser	Thr	Ser	Leu	Gly	Gln	Asp	Ala	Arg	Arg	Leu	Gly	Gly		
143					148					153					158		
cag	gcc	gtg	ggg	acc	cga	gac	cag	gcg	agc	caa	ttg	ctg	gcc	ggc	acc		1070
Gln	Ala	Val	Gly	Thr	Arg	Asp	Gln	Ala	Ser	Gln	Leu	Leu	Ala	Gly	Thr		
159					164					169					174		
gag	gcc	aca	ctg	ggc	cat	gcg	aag	acg	ctg	ttg	gcg	gcc	atc	cgg	gct		1118
Glu	Ala	Thr	Leu	Gly	His	Ala	Lys	Thr	Leu	Leu	Ala	Ala	Ile	Arg	Ala		
175					180					185					190		
gtg	gac	cgc	acc	ctg	agc	gag	ctc	atg	tcc	cag	acg	ggc	cac	ctg	ggg		1166
Val	Asp	Arg	Thr	Leu	Ser	Glu	Leu	Met	Ser	Gln	Thr	Gly	His	Leu	Gly		
191					196					201					206		
ctg	gcc	aac	ggc	tcg	gct	cca	tca	ggt	gag	cag	ctg	ctc	cgg	aca	ctg		1214
Leu	Ala	Asn	Ala	Ser	Ala	Pro	Ser	Gly	Glu	Gln	Leu	Leu	Arg	Thr	Leu		
207					212					217					222		
gcc	gag	gtg	gag	cgg	ctg	ctc	tgg	gag	atg	cgg	gcc	cgg	gac	ctg	ggg		1262
Ala	Glu	Val	Glu	Arg	Leu	Leu	Trp	Glu	Met	Arg	Ala	Arg	Asp	Leu	Gly		
223					228					233					238		
gcc	ccg	cag	gca	gca	gct	gag	gct	gag	ttg	gct	gca	gca	cag	aga	ttg		1310
Ala	Pro	Gln	Ala	Ala	Ala	Glu	Ala	Glu	Leu	Ala	Ala	Ala	Gln	Arg	Leu		

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ctg gcc cgg gtg cag gag cag ctg agc agc ctc tgg gag gag aac cag				1358
Leu Ala Arg Val Gln Glu Gln Leu Ser Ser Leu Trp Glu Glu Asn Gln				
255	260	265	270	
gca ctg gcc aca caa acc cgc gac cgg ctg gcc cag cac gag gcc ggc				1406
Ala Leu Ala Thr Gln Thr Arg Asp Arg Leu Ala Gln His Glu Ala Gly				
271	276	281	286	
ctc atg gac ctg cga gag gct ttg aac cgg gca gtg gac gcc aca cgg				1454
Leu Met Asp Leu Arg Glu Ala Leu Asn Arg Ala Val Asp Ala Thr Arg				
287	292	297	302	
gag gcc cag gag ctc aac agc cgc aac cag gag cgc ctg gag gaa gcc				1502
Glu Ala Gln Glu Leu Asn Ser Arg Asn Gln Glu Arg Leu Glu Glu Ala				
303	308	313	318	
ctg caa agg aag cag gag ctg tcc cgg gac aat gcc acc ctg cag gcc				1550
Leu Gln Arg Lys Gln Glu Leu Ser Arg Asp Asn Ala Thr Leu Gln Ala				
319	324	329	334	
act ctg cat gcg gct agg gac acc ctg gcc agc gtc ttc aga ttg ctg				1598
Thr Leu His Ala Ala Arg Asp Thr Leu Ala Ser Val Phe Arg Leu Leu				
335	340	345	350	
cac agc ctg gac cag gct aag gag gag ctg gag cgc ctc gcc gcc agc				1646
His Ser Leu Asp Gln Ala Lys Glu Glu Leu Glu Arg Leu Ala Ala Ser				
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ctg gac ggg gct cgg acc cca ctg ctg cag agg atg cag acc ttc tcc				1694
Leu Asp Gly Ala Arg Thr Pro Leu Leu Gln Arg Met Gln Thr Phe Ser				
367	372	377	382	
ccg gcg ggc agc aag ctg cgt cta gtg gag gcc gcc gag gcc cac gca				1742
Pro Ala Gly Ser Lys Leu Arg Leu Val Glu Ala Ala Glu Ala His Ala				
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Gln Gln Leu Gly Gln Leu Ala Leu Asn Leu Ser Ser Ile Ile Leu Asp				
399	404	409	414	
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Val Asn Gln Asp Arg Leu Thr Gln Arg Ala Ile Glu Ala Ser Asn Ala				
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tac agc cgc atc ctg cag gcc gtg cag gct gcc gag gat gct gct ggc				1886
Tyr Ser Arg Ile Leu Gln Ala Val Gln Ala Ala Glu Asp Ala Ala Gly				
431	436	441	446	
cag gcc ctg cag cag gcg gac cac acg tgg gcg acg gtg gtg cgg cag				1934
Gln Ala Leu Gln Gln Ala Asp His Thr Trp Ala Thr Val Val Arg Gln				
447	452	457	462	
ggc ctg gtg gac cga gcc cag cag ctc ctg gcc aac agc act gca cta				1982
Gly Leu Val Asp Arg Ala Gln Gln Leu Leu Ala Asn Ser Thr Ala Leu				
463	468	473	478	

gaa gag gcc atg ctc cag gaa cag cag agg ctg ggc ctt gtg tgg gct	2030
Glu Glu Ala Met Leu Gln Glu Gln Arg Leu Gly Leu Val Trp Ala	
479 484 489 494	
gcc ctc cag ggt gcc agg acc cag ctc cga gat gtc cgg gcc aag aag	2078
Ala Leu Gln Gly Ala Arg Thr Gln Leu Arg Asp Val Arg Ala Lys Lys	
495 500 505 510	
gac cag ctg gag gcg cac atc cag gcg gcg cag gcc atg ctt gcc atg	2126
Asp Gln Leu Glu Ala His Ile Gln Ala Ala Gln Ala Met Leu Ala Met	
511 516 521 526	
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Asp Thr Asp Glu Thr Ser Lys Lys Ile Ala His Ala Lys Ala Val Ala	
527 532 537 542	
gct gaa gcc cag gac acc gcc acc cgt gtg cag tcc cag ctg cag gcc	2222
Ala Glu Ala Gln Asp Thr Ala Thr Arg Val Gln Ser Gln Leu Gln Ala	
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Met Gln Glu Asn Val Glu Arg Trp Gln Gly Gln Tyr Glu Gly Leu Arg	
559 564 569 574	
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Gly Gln Asp Leu Gly Gln Ala Val Leu Asp Ala Gly His Ser Val Ser	
575 580 585 590	
acc ctg gag aag acg ctg ccc cag ctg ctg gcc aag ctg agc atc ctg	2366
Thr Leu Glu Lys Thr Leu Pro Gln Leu Leu Ala Lys Leu Ser Ile Leu	
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gag aac cgt ggg gtg cac aac gcc agc ctg gcc ctg tcc gcc agc att	2414
Glu Asn Arg Gly Val His Asn Ala Ser Leu Ala Leu Ser Ala Ser Ile	
607 612 617 622	
ggc cgc gtg cga gag ctc att gcc cag gcc cgg ggg gct gcc agt aag	2462
Gly Arg Val Arg Glu Leu Ile Ala Gln Ala Arg Gly Ala Ala Ser Lys	
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Val Lys Val Pro Met Lys Phe Asn Gly Arg Ser Gly Val Gln Leu Arg	
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Thr Pro Arg Asp Leu Ala Asp Leu Ala Ala Tyr Thr Ala Leu Lys Phe	
655 660 665 670	
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Tyr Leu Gln Gly Pro Glu Pro Glu Pro Gly Gln Gly Thr Glu Asp Arg	
671 676 681 686	
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Phe Val Met Tyr Met Gly Ser Arg Gln Ala Thr Gly Asp Tyr Met Gly	
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Val Ser Leu Arg Asp Lys Lys Val His Trp Val Tyr Gln Leu Gly Glu	
703 708 713 718	
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Ala Gly Pro Ala Val Leu Ser Ile Asp Glu Asp Ile Gly Glu Gln Phe	
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Ala Ala Val Ser Leu Asp Arg Thr Leu Gln Phe Gly His Met Ser Val	
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Thr Val Glu Arg Gln Met Ile Gln Glu Thr Lys Gly Asp Thr Val Ala	
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Pro Gly Ala Glu Gly Leu Leu Asn Leu Arg Pro Asp Asp Phe Val Phe	
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Tyr Val Gly Gly Tyr Pro Ser Thr Phe Thr Pro Pro Pro Leu Leu Arg	
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Phe Pro Gly Tyr Arg Gly Cys Ile Glu Met Asp Thr Leu Asn Glu Glu	
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Val Val Ser Leu Tyr Asn Phe Glu Arg Thr Phe Gln Leu Asp Thr Ala	
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Val Asp Arg Pro Cys Ala Arg Ser Lys Ser Thr Gly Asp Pro Trp Leu	
831 836 841 846	
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Thr Asp Gly Ser Tyr Leu Asp Gly Thr Gly Phe Ala Arg Ile Ser Phe	
847 852 857 862	
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Asp Ser Gln Ile Ser Thr Thr Lys Arg Phe Glu Gln Glu Leu Arg Leu	
863 868 873 878	
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Val Ser Tyr Ser Gly Val Leu Phe Phe Leu Lys Gln Gln Ser Gln Phe	
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Leu Cys Leu Ala Val Gln Glu Gly Ser Leu Val Leu Leu Tyr Asp Phe	
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Gly Ala Gly Leu Lys Lys Ala Val Pro Leu Gln Pro Pro Pro Pro Leu	
911 916 921 926	
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Lys	Arg	Val	Leu	Val	Arg	Val	Glu	Arg	Ala	Thr	Val	Tyr	Ser	Val	Glu	
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Gln	Asp	Asn	Asp	Leu	Glu	Leu	Ala	Asp	Ala	Tyr	Tyr	Leu	Gly	Gly	Val	
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Pro	Pro	Asp	Gln	Leu	Pro	Pro	Ser	Leu	Arg	Trp	Leu	Phe	Pro	Thr	Gly	
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Gly	Ser	Val	Arg	Gly	Cys	Val	Lys	Gly	Ile	Lys	Ala	Leu	Gly	Lys	Tyr	
991					996					1001					1006	
gtg	gac	ctc	aag	cgg	ctg	aac	acg	aca	ggc	gtg	agc	gcc	ggc	tgc	acc	3614
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Ala	Asp	Leu	Leu	Val	Gly	Arg	Ala	Met	Thr	Phe	His	Gly	His	Gly	Phe	
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Cys Ile Ser Asn Val Phe Val Gln Arg Leu Leu Gly Pro Gln Arg Val				
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Phe Asp Leu Gln Gln Asn Leu Gly Ser Val Asn Val Ser Thr Gly Cys				
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Ala Pro Ala Leu Gln Ala Gln Thr Pro Gly Leu Gly Pro Arg Gly Leu				
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Gln Ala Thr Ala Arg Lys Ala Ser Arg Arg Ser Arg Gln Pro Ala Arg				
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His Pro Ala Cys Met Leu Pro Pro His Leu Arg Thr Thr Arg Asp Ser				
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Tyr Gln Phe Gly Gly Ser Leu Ser Ser His Leu Glu Phe Val Gly Ile				
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Leu Ala Arg His Arg Asn Trp Pro Ser Leu Ser Met His Val Leu Pro				
1263	1268	1273	1278	
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Arg Ser Ser Arg Gly Leu Leu Leu Phe Thr Ala Arg Leu Arg Pro Gly				
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Ser Pro Ser Leu Ala Leu Phe Leu Ser Asn Gly His Phe Val Ala Gln				
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Met Glu Gly Leu Gly Thr Arg Leu Arg Ala Gln Ser Arg Gln Arg Ser				
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Arg Pro Gly Arg Trp His Lys Val Ser Val Arg Trp Glu Lys Asn Arg				
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Ile Leu Leu Val Thr Asp Gly Ala Arg Ala Trp Ser Gln Glu Gly Pro				
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His Arg Gln His Gln Gly Ala Glu His Pro Gln Pro His Thr Leu Phe				
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Val Gly Gly Leu Pro Ala Ser Ser His Ser Ser Lys Leu Pro Val Thr				
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Cys Gly Gly Ser Asp Leu Pro Leu Arg Phe Pro Tyr Gly Arg Pro Glu
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Phe Leu Gly Leu Ser Gln Asp Glu Val Glu Cys Ser Ala Asp His Ile
34 39 44 49
gcc cgc ccc atc ctc atc ctc aag gag act cgg cgg ctg ccc tgg gcc 249
Ala Arg Pro Ile Leu Ile Leu Lys Glu Thr Arg Arg Leu Pro Trp Ala
50 55 60 65
act ggc tac gca gag gtt atc aat gcc ggg aag agc aca cac aat gaa 297
Thr Gly Tyr Ala Glu Val Ile Asn Ala Gly Lys Ser Thr His Asn Glu
66 71 76 81
gac caa gcc agc tgt gag gtg ctc act gtg aag aag aag gca ggg gcc 345
Asp Gln Ala Ser Cys Glu Val Leu Thr Val Lys Lys Lys Ala Gly Ala
82 87 92 97
gtg acc tca acc cca aac agg aac tca tcc aag aga cgg tcc tcc ctt 393
Val Thr Ser Thr Pro Asn Arg Asn Ser Ser Lys Arg Arg Ser Ser Leu
98 103 108 113
ccc aat ggg gaa ggg ctg cag ctg aag gag aac tcg gaa tcc gag ggt 441
Pro Asn Gly Glu Gly Leu Gln Leu Lys Glu Asn Ser Glu Ser Glu Gly

114	119	124	129	
gtt tcc tgc cac tat tgg tgc ctg ttt gac ggg cac gcg ggg tcc ggg				489
Val Ser Cys His Tyr Trp Ser Leu Phe Asp Gly His Ala Gly Ser Gly				
130	135	140	145	
gcc gcg gtg gtg gcg tca cgc ctg ctg cag cac cac atc acg gag cag				537
Ala Ala Val Val Ala Ser Arg Leu Leu Gln His His Ile Thr Glu Gln				
146	151	156	161	
ctg cag gac atc gtg gac atc ctg aag aac tcc gcc gtc ctg ccc cct				585
Leu Gln Asp Ile Val Asp Ile Leu Lys Asn Ser Ala Val Leu Pro Pro				
162	167	172	177	
acc tgc ctg ggg gag gag cct gag aac acg ccc gcc aac agc cgg act				633
Thr Cys Leu Gly Glu Glu Pro Glu Asn Thr Pro Ala Asn Ser Arg Thr				
178	183	188	193	
ctg acc cgg gca gcc tcc ctg cgc gga ggg gtg ggg gcc ccg ggc tcc				681
Leu Thr Arg Ala Ala Ser Leu Arg Gly Gly Val Gly Ala Pro Gly Ser				
194	199	204	209	
ccc agc acg ccc ccc aca cgc ttc ttt acc gag aag aag att ccc cat				729
Pro Ser Thr Pro Pro Thr Arg Phe Phe Thr Glu Lys Lys Ile Pro His				
210	215	220	225	
gag tgc ctg gtc atc gga gcg ctt gaa agt gca ttc aag gaa atg gac				777
Glu Cys Leu Val Ile Gly Ala Leu Glu Ser Ala Phe Lys Glu Met Asp				
226	231	236	241	
cta cag ata gaa cga gag agg agt tca tat aat ata tct ggt ggc tgc				825
Leu Gln Ile Glu Arg Glu Arg Ser Ser Tyr Asn Ile Ser Gly Gly Cys				
242	247	252	257	
acg gcc ctc att gtg att tgc ctt ttg ggg aag ctg tat gtt gca aat				873
Thr Ala Leu Ile Val Ile Cys Leu Leu Gly Lys Leu Tyr Val Ala Asn				
258	263	268	273	
gct ggg gat agc agg gcc ata atc atc aga aat gga gaa att atc ccc				921
Ala Gly Asp Ser Arg Ala Ile Ile Ile Arg Asn Gly Glu Ile Ile Pro				
274	279	284	289	
atg tct tca gaa ttt acc ccc gag acg gag cgc cag cga ctt cag tac				969
Met Ser Ser Glu Phe Thr Pro Glu Thr Glu Arg Gln Arg Leu Gln Tyr				
290	295	300	305	
ctg gca ttc atg cag cct cac ttg ctg gga aat gag ttc aca cat ttg				1017
Leu Ala Phe Met Gln Pro His Leu Leu Gly Asn Glu Phe Thr His Leu				
306	311	316	321	
gag ttt cca agg aga gta cag aga aag gag ctt gga aag aag atg ctc				1065
Glu Phe Pro Arg Arg Val Gln Arg Lys Glu Leu Gly Lys Lys Met Leu				
322	327	332	337	
tac agg gac ttt aat atg aca ggc tgg gca tac aaa acc att gag gat				1113
Tyr Arg Asp Phe Asn Met Thr Gly Trp Ala Tyr Lys Thr Ile Glu Asp				
338	343	348	353	

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Glu Asp Leu Lys Phe Pro Leu Ile Tyr Gly Glu Gly Lys Lys Ala Arg	
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Val Met Ala Thr Ile Gly Val Thr Arg Gly Leu Gly Asp His Asp Leu	
370 375 380 385	
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Lys Val His Asp Ser Asn Ile Tyr Ile Lys Pro Phe Leu Ser Ser Ala	
386 391 396 401	
cca gag gta aga atc tac gat ctt tca aaa tat gat cat gga tca gat	1305
Pro Glu Val Arg Ile Tyr Asp Leu Ser Lys Tyr Asp His Gly Ser Asp	
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Asp Val Leu Ile Leu Ala Thr Asp Gly Leu Trp Asp Val Leu Ser Asn	
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gaa gaa gta gca gaa gca atc act cag ttt ctt cct aac tgt gat cca	1401
Glu Glu Val Ala Glu Ala Ile Thr Gln Phe Leu Pro Asn Cys Asp Pro	
434 439 444 449	
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Asp Asp Pro His Arg Tyr Thr Leu Ala Ala Gln Asp Leu Val Met Arg	
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gcc cgg ggt gtg ctg aag gac aga gga tgg cgg ata tct aat gac cga	1497
Ala Arg Gly Val Leu Lys Asp Arg Gly Trp Arg Ile Ser Asn Asp Arg	
466 471 476 481	
ctg ggc tca gga gac gac att tct gta tat gtc att cct tta ata cat	1545
Leu Gly Ser Gly Asp Asp Ile Ser Val Tyr Val Ile Pro Leu Ile His	
482 487 492 497	
gga aac aag ctg tca tga aaatgg cccaggggat tgggaggaca gaggggaaga	1599
Gly Asn Lys Leu Ser *	
498 503	
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cccttttggtt tccatttctt ctttagtaac aggccaactc aacaagagca aaacacaaag	1779
gctgctacca agtggtgttg tatttcagtt cctttcatag gcctccgagg tggccattga	1839
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gggttaacct ggggtcaaag cacggattct cacctcgtag agttacgctc tcccgcggca	180
cgccccgag gacttgaagt cctgagcgt caagtttgtc cgtagggtcga gagaaggcc	239
atg gag gtg ccg cca ccg gca ccg cgg agc ttt ctc tgt aga gca ttg	287
Met Glu Val Pro Pro Pro Ala Pro Arg Ser Phe Leu Cys Arg Ala Leu	
1 5 10 15	
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Cys Leu Phe Pro Arg Val Phe Ala Ala Glu Ala Val Thr Ala Asp Ser	
17 22 27 32	
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Glu Val Leu Glu Glu Arg Gln Lys Arg Leu Pro Tyr Val Pro Glu Pro	
33 38 43 48	
tat tac ccg gaa tct gga tgg gac cgc ctc cgg gag ctg ttt ggc aaa	431
Tyr Tyr Pro Glu Ser Gly Trp Asp Arg Leu Arg Glu Leu Phe Gly Lys	
49 54 59 64	
gat gaa cag cag aga att tca aag gac ctt gct gat atc tgt aag acg	479
Asp Glu Gln Gln Arg Ile Ser Lys Asp Leu Ala Asp Ile Cys Lys Thr	
65 70 75 80	
gca gct aca gca ggc atc att ggc tgg gtg tat ggg gga ata cca gct	527
Ala Ala Thr Ala Gly Ile Ile Gly Trp Val Tyr Gly Gly Ile Pro Ala	
81 86 91 96	
ttt att cat gct aaa caa caa tac att gag cag agc cag gca gaa att	575
Phe Ile His Ala Lys Gln Gln Tyr Ile Glu Gln Ser Gln Ala Glu Ile	
97 102 107 112	
tat cat aac cgg ttt gat gct gtg caa tct gca cat cgt gct gcc aca	623
Tyr His Asn Arg Phe Asp Ala Val Gln Ser Ala His Arg Ala Ala Thr	
113 118 123 128	
cga ggc ttc att cgt tat ggc tgg cgc tgg ggt tgg aga act gca gtg	671
Arg Gly Phe Ile Arg Tyr Gly Trp Arg Trp Gly Trp Arg Thr Ala Val	
129 134 139 144	
ttt gtg act ata ttc aac aca gtg aac act agt ctg aat gta tac cga	719
Phe Val Thr Ile Phe Asn Thr Val Asn Thr Ser Leu Asn Val Tyr Arg	
145 150 155 160	
aat aaa gat gcc tta agc cat ttt gta att gca gga gct gtc acg gga	767
Asn Lys Asp Ala Leu Ser His Phe Val Ile Ala Gly Ala Val Thr Gly	
161 166 171 176	

Met Ala Gly Gly Ala Arg Glu Val Leu Thr Leu Gln
 1 5 10

ttg gga cat ttt gcc ggt ttc gtg ggc gcg cac tgg tgg aac cag cag	156
Leu Gly His Phe Ala Gly Phe Val Gly Ala His Trp Trp Asn Gln Gln	
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Asp Ala Ala Leu Gly Arg Ala Thr Asp Ser Lys Glu Pro Pro Gly Glu	
29 34 39 44	
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Leu Cys Pro Asp Val Leu Tyr Arg Thr Gly Arg Thr Leu His Gly Gln	
45 50 55 60	
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Glu Thr Tyr Thr Pro Arg Leu Ile Leu Met Asp Leu Lys Gly Ser Leu	
61 66 71 76	
agc tcc cta aaa gag gaa ggt gga ctc tac agg gac aaa cag ttg gat	348
Ser Ser Leu Lys Glu Glu Gly Gly Leu Tyr Arg Asp Lys Gln Leu Asp	
77 82 87 92	
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Asp Ala Ile Ala Trp Gln Gly Lys Leu Thr Thr His Lys Glu Glu Leu	
93 98 103 108	
tat ccc aag aac cct tat ctc caa gac ttt ctg agt gca gag gga gtg	444
Tyr Pro Lys Asn Pro Tyr Leu Gln Asp Phe Leu Ser Ala Glu Gly Val	
109 114 119 124	
ctg agt agt gat ggt gtc tgg agg gtc aaa tcc att ccc aat ggc aaa	492
Leu Ser Ser Asp Gly Val Trp Arg Val Lys Ser Ile Pro Asn Gly Lys	
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Gly Ser Ser Pro Leu Pro Thr Ala Thr Thr Pro Lys Pro Leu Ile Pro	
141 146 151 156	
aca gag gcc agc atc agg gtc tgg tca gac ttc ctc aga gtc cat ctc	588
Thr Glu Ala Ser Ile Arg Val Trp Ser Asp Phe Leu Arg Val His Leu	
157 162 167 172	
cat ccc cgg agc atc tgt atg att cag aag tac aac cac gat ggg gaa	636
His Pro Arg Ser Ile Cys Met Ile Gln Lys Tyr Asn His Asp Gly Glu	
173 178 183 188	
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Ala Gly Arg Leu Glu Ala Phe Gly Gln Gly Glu Ser Val Leu Lys Glu	
189 194 199 204	
ccc aag tac cag gaa gag ctg gag gac agg ctg cat ttc tac gtg gag	732
Pro Lys Tyr Gln Glu Glu Leu Glu Asp Arg Leu His Phe Tyr Val Glu	
205 210 215 220	
gaa tgt gac tac ttg cag ggc ttc cag atc ctg tgt gac ctg cac gat	780
Glu Cys Asp Tyr Leu Gln Gly Phe Gln Ile Leu Cys Asp Leu His Asp	

221	226	231	236	
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Gly Phe Ser Gly Val	Gly Ala Lys Ala Ala	Glu Leu Leu Gln Asp Glu		
237	242	247	252	
tat tca ggg cgg gga	ata ata acc tgg ggc	ctg cta cct ggt ccc tac		876
Tyr Ser Gly Arg Gly	Ile Ile Thr Trp Gly	Leu Leu Pro Gly Pro Tyr		
253	258	263	268	
cat cgt ggg gag gcc	cag aga aac atc tat	cgt cta tta aac aca gct		924
His Arg Gly Glu Ala	Gln Arg Asn Ile Tyr	Arg Leu Leu Asn Thr Ala		
269	274	279	284	
ttt ggt ctc gtg cac	ctg act gct cac agc	tct ctt gtc tgc ccc ttg		972
Phe Gly Leu Val His	Leu Thr Ala His Ser	Ser Leu Val Cys Pro Leu		
285	290	295	300	
tcc ttg ggt ggg agc	ctg ggc ctg cga ccc	gag cca cct gtc agc ttc		1020
Ser Leu Gly Gly Ser	Leu Gly Leu Arg Pro	Glu Pro Pro Val Ser Phe		
301	306	311	316	
cct tac ctg cat tat	gat gcc act ctg ccc	ttc cac tgc agt gcc atc		1068
Pro Tyr Leu His Tyr	Asp Ala Thr Leu Pro	Phe His Cys Ser Ala Ile		
317	322	327	332	
ctg gct aca gcc ctg	gac aca gtc act gtt	cct tat cgc ctg tgt tcc		1116
Leu Ala Thr Ala Leu	Asp Thr Val Thr Val	Pro Tyr Arg Leu Cys Ser		
333	338	343	348	
tct cca gtt tcc atg	gtt cat ctg gct gac	atg ctg agc ttc tgt ggg		1164
Ser Pro Val Ser Met	Val His Leu Ala Asp	Met Leu Ser Phe Cys Gly		
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aaa aag gtg gtg aca	gca gga gca atc atc	cct ttc ccc ttg gct cca		1212
Lys Lys Val Val Thr	Ala Gly Ala Ile Ile	Pro Phe Pro Leu Ala Pro		
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ggc cag tcc ctt cct	gat tcc ctg atg cag	ttt gga gga gcc acc cca		1260
Gly Gln Ser Leu Pro	Asp Ser Leu Met Gln	Phe Gly Gly Ala Thr Pro		
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tgg acc cca ctg tct	gca tgt ggg gag cct	tct gga aca cgt tgt ttt		1308
Trp Thr Pro Leu Ser	Ala Cys Gly Glu Pro	Ser Gly Thr Arg Cys Phe		
397	402	407	412	
gcc cag tca gtg gtg	ctg agg ggt ata gac	aga gca tgc cac aca agc		1356
Ala Gln Ser Val Val	Leu Arg Gly Ile Asp	Arg Ala Cys His Thr Ser		
413	418	423	428	
cag ctc acc cca ggg	aca cct cca ccc tct	gcc ctt cat gca tgt acc		1404
Gln Leu Thr Pro Gly	Thr Pro Pro Pro Ser	Ala Leu His Ala Cys Thr		
429	434	439	444	
act ggg gaa gaa atc	ttg gct cag tat tta	caa cag cag cag cct gga		1452
Thr Gly Glu Glu Ile	Leu Ala Gln Tyr Leu	Gln Gln Gln Gln Pro Gly		
445	450	455	460	

gtc atg agt tct tcc cat ctg ctg ctg act ccc tgc agg gtg gct cct	1500
Val Met Ser Ser Ser His Leu Leu Leu Thr Pro Cys Arg Val Ala Pro	
461 466 471 476	
cct tac ccc cac ctc ttc tca agc tgc agt cca ccg gca gtg gag agc	1548
Pro Tyr Pro His Leu Phe Ser Ser Cys Ser Pro Pro Ala Val Glu Ser	
477 482 487 492	
atc cca gtg ttt ggg gca ctg tgt tcc tct tcg tcc ctg cac cag acc	1596
Ile Pro Val Phe Gly Ala Leu Cys Ser Ser Ser Ser Leu His Gln Thr	
493 498 503 508	
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509 514 519 524	
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Ala Ser Phe Met Asp Ala Gly Val Glu His Asp Asp Val Ala Glu Leu	
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Leu Gln Glu Leu Gln Ser Leu Ala Gln Cys Tyr Gln Gly Gly Asp Ser	
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Leu Val Asp *	
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Met
1

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Glu Ser Ser Pro Phe Asn Arg Arg Gln Trp Thr Ser Leu Ser Leu Arg
2 7 12 17

gta aca gcc aaa gaa ctt tct ctt gtc aac aag aac aag tca tcg gct 271
Val Thr Ala Lys Glu Leu Ser Leu Val Asn Lys Asn Lys Ser Ser Ala
18 23 28 33

att gtg gaa ata ttc tcc aag tac cag aaa gca gct gaa gaa aca aac 319
Ile Val Glu Ile Phe Ser Lys Tyr Gln Lys Ala Ala Glu Glu Thr Asn
34 39 44 49

atg gag aag aag aga agt aac acc gaa aat ctc tcc cag cac ttt aga 367
Met Glu Lys Lys Arg Ser Asn Thr Glu Asn Leu Ser Gln His Phe Arg
50 55 60 65

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Lys Gly Thr Leu Thr Val Leu Lys Lys Lys Trp Glu Asn Pro Gly Leu
66 71 76 81

gga gca gag tct cac aca gac tct cta cgg aac agc agc act gag att 463
Gly Ala Glu Ser His Thr Asp Ser Leu Arg Asn Ser Ser Thr Glu Ile
82 87 92 97

agg cac aga gca gac cat cct cct gct gaa gtg aca agc cac gct got 511
Arg His Arg Ala Asp His Pro Pro Ala Glu Val Thr Ser His Ala Ala
98 103 108 113

tct gga gcc aaa gct gac caa gaa gaa caa atc cac ccc aga tct aga 559
Ser Gly Ala Lys Ala Asp Gln Glu Glu Gln Ile His Pro Arg Ser Arg
114 119 124 129

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Leu Arg Ser Pro Pro Glu Ala Leu Val Gln Gly Arg Tyr Pro His Ile
130 135 140 145

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Lys Asp Gly Glu Asp Leu Lys Asp His Ser Thr Glu Ser Lys Lys Met
146 151 156 161

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Glu Asn Cys Leu Gly Glu Ser Arg His Glu Val Glu Lys Ser Glu Ile

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418 423 428 433	
gga aga atc tat tgt aag cct cac ttc aat caa ctc ttt aaa tct aag	1519
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Ala Ser Lys Asn Glu Asn Glu Glu Ile Leu Glu Arg Pro Ala Gln Leu	
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Ser Gln Gln Glu Lys Glu Asp Lys Pro Ala Glu Thr Lys Lys Leu Arg	
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Ile Ala Trp Pro Pro Pro Thr Glu Leu Gly Ser Ser Gly Ser Ala Leu	
530 535 540 545	
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Glu Glu Gly Ile Lys Met Ser Lys Pro Lys Trp Pro Pro Glu Asp Glu	
546 551 556 561	
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Pro Pro Ile Arg Lys Gly Trp Ser Met Ser Glu Gln Ser Glu Glu Ser	
610 615 620 625	

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tct aaa gga gag aca ggg aag aga agt aag gaa ggt cat agt ttg gag Ser Lys Gly Glu Thr Gly Lys Arg Ser Lys Glu Gly His Ser Leu Glu 658 663 668 673	2191
atg gag aat gag aat ctt gta gaa aat ggt gca gac tcc gat gaa gat Met Glu Asn Glu Asn Leu Val Glu Asn Gly Ala Asp Ser Asp Glu Asp 674 679 684 689	2239
gat aac agc ttc ctc aaa caa caa tct cca caa gaa ccc aag tct ctg Asp Asn Ser Phe Leu Lys Gln Gln Ser Pro Gln Glu Pro Lys Ser Leu 690 695 700 705	2287
aat tgg tcg agt ttt gta gac aac acc ttt gct gaa gaa ttc act act Asn Trp Ser Ser Phe Val Asp Asn Thr Phe Ala Glu Glu Phe Thr Thr 706 711 716 721	2335
cag aat cag aaa tcc cag gat gtg gaa ctc tgg gag gga gaa gtg gtc Gln Asn Gln Lys Ser Gln Asp Val Glu Leu Trp Glu Gly Glu Val Val 722 727 732 737	2383
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gag gat gag gat gaa gag tga ca aattgcaatg atgctggggcc ttaaattcat Glu Asp Glu Asp Glu Glu * 754 759	2484
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acaaaacaaa aaaacacatt ctaaatacta gagataactt tacttaaatt cttcattttt	2664
gcagtgatga tatgcataag tgctgtaagg cttgtaactg gggaaatatt ccacctgata	2724
atagcctttt ttttctttat ttccatatgg caatattaag gtagacagat gattagtagt	2784
atattgttac acactatttt tgaattagag atcatacaga aggatttttag gggcttaaac	2844
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<211> 585

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 <222> (157) .. (444)

<400> 46

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acggtcacac cgcggcgaat taattcccaa agactc   atg tta cat gag aaa gcc      174
                                   Met Leu His Glu Lys Ala
                                   1
acc aag aag acc aaa gaa aag gag aca agg atg gct ctt cct cag gga      222
Thr Lys Lys Thr Lys Glu Lys Glu Thr Arg Met Ala Leu Pro Gln Gly
   7                               12                               17                               22
tgc ttg act ttc aag gat gtg gct ata gaa ttc tct ttg gag gag tgg      270
Cys Leu Thr Phe Lys Asp Val Ala Ile Glu Phe Ser Leu Glu Glu Trp
  23                               28                               33                               38
aaa tgc ctg aac cct gca cag agg gct tta tac agg gcc gtg atg ttg      318
Lys Cys Leu Asn Pro Ala Gln Arg Ala Leu Tyr Arg Ala Val Met Leu
  39                               44                               49                               54
gag aac tac agg aac ctg gag tct gtg gga ttg act tct aag gac tct      366
Glu Asn Tyr Arg Asn Leu Glu Ser Val Gly Leu Thr Ser Lys Asp Ser
  55                               60                               65                               70
tgg tac atg agg aag aaa ccc gga agg gga aga gga aag caa agg cgt      414
Trp Tyr Met Arg Lys Lys Pro Gly Arg Gly Arg Gly Lys Gln Arg Arg
  71                               76                               81                               86
cag gaa tgg ttc ttc ctc agg gtc tat tga c attcagggat gtggccatag      465
Gln Glu Trp Phe Phe Leu Arg Val Tyr *
  87                               92
aattctctca ggaggagtgg aaatgcctgg accctgctca gaggactcta tacagagatg      525
tgatgttgga gaaatatagg aaccggggct ccctgggatt ttttctaaat gtgagacaag      585
  
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<220>

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<400> 47

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                      Met Ser Gln
                      1

ctg gtg gaa tgc gtc ccc aac ttt tgc gag ggg aag aac cag gag gtg      163
Leu Val Glu Cys Val Pro Asn Phe Ser Glu Gly Lys Asn Gln Glu Val
   4                      9                      14          19

atc gac gcc atc tct gga gcc atc aca cag acc ccg ggc tgc gtg ctg      211
Ile Asp Ala Ile Ser Gly Ala Ile Thr Gln Thr Pro Gly Cys Val Leu
  20                      25                      30          35

ctg gat gtg gac gca ggc cct tcc acc aac cgc acc gtg tac acc ttc      259
Leu Asp Val Asp Ala Gly Pro Ser Thr Asn Arg Thr Val Tyr Thr Phe
  36                      41                      46          51

gtg ggg ccg ccg gag tgc gtg gtg gag ggg gcc ctc aac gct gcc cgg      307
Val Gly Pro Pro Glu Cys Val Val Glu Gly Ala Leu Asn Ala Ala Arg
  52                      57                      62          67

gta gct tcc cga ctt atc gac atg agc agg cac caa gga gag cac ccc      355
Val Ala Ser Arg Leu Ile Asp Met Ser Arg His Gln Gly Glu His Pro
  68                      73                      78          83

cgc atg ggg gcc cta gac gtc tgc ccc ttc atc ccc gtg agg ggc gtc      403
Arg Met Gly Ala Leu Asp Val Cys Pro Phe Ile Pro Val Arg Gly Val
  84                      89                      94          99

agc gtg gat gag tgt gtg ctc tgc gcc cag gcc ttt ggc cag agg ctg      451
Ser Val Asp Glu Cys Val Leu Cys Ala Gln Ala Phe Gly Gln Arg Leu
 100                      105                      110          115

gca gag gag ctg gac gtg cca ggc ctg acc gcc ggg ctc tcc tgc agt      499
Ala Glu Glu Leu Asp Val Pro Gly Leu Thr Ala Gly Leu Ser Cys Ser
 116                      121                      126          131

tac ctg tac ggc gag gca gcc agg atg gac agt cgc cgg acc ctg ccg      547
Tyr Leu Tyr Gly Glu Ala Ala Arg Met Asp Ser Arg Arg Thr Leu Pro
 132                      137                      142          147

gcc atc cgg gcc ggg gag tac gag gcc ctc cct aag aag ctc cag cag      595
Ala Ile Arg Ala Gly Glu Tyr Glu Ala Leu Pro Lys Lys Leu Gln Gln
 148                      153                      158          163

gcc gac tgg gcg ccc gac ttt ggt ccc agc tcc ttt gtc ccc agt tgg      643
Ala Asp Trp Ala Pro Asp Phe Gly Pro Ser Ser Phe Val Pro Ser Trp
 164                      169                      174          179

ggg gcc acg gcc acg ggg gcg agg aag ttc ctc att gct ttt aac atc      691
Gly Ala Thr Ala Thr Gly Ala Arg Lys Phe Leu Ile Ala Phe Asn Ile

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180	185	190	195	
aac ctg ctc ggc aca aag gag caa gcc cac cgc atc gcg ctc aac ctg				739
Asn Leu Leu Gly Thr Lys Glu Gln Ala His Arg Ile Ala Leu Asn Leu				
196	201	206	211	
cgg gag cag ggc cgc ggg aag gac cag cca gga cgt ctg aag aaa gtt				787
Arg Glu Gln Gly Arg Gly Lys Asp Gln Pro Gly Arg Leu Lys Lys Val				
212	217	222	227	
cag ggc ttt ggc tgg tac ctg gat gag aag aac ctg gct cag gtg tcc				835
Gln Gly Phe Gly Trp Tyr Leu Asp Glu Lys Asn Leu Ala Gln Val Ser				
228	233	238	243	
acc aat ctt ctg gac ttt gag gtc acg gca ctg cac acg gtc tac gag				883
Thr Asn Leu Leu Asp Phe Glu Val Thr Ala Leu His Thr Val Tyr Glu				
244	249	254	259	
gag acc tgc cga gaa gca cag gag ctg agc ctc cca gtg gtg ggc tca				931
Glu Thr Cys Arg Glu Ala Gln Glu Leu Ser Leu Pro Val Val Gly Ser				
260	265	270	275	
cag ctg gtg ggc ctg gtg ccc ctg aag gct ctg ctg gat gcg gcc gcc				979
Gln Leu Val Gly Leu Val Pro Leu Lys Ala Leu Leu Asp Ala Ala Ala				
276	281	286	291	
ttc tac tgc gag aag gag aac ctc ttc atc ctg gag gag gag cag cgg				1027
Phe Tyr Cys Glu Lys Glu Asn Leu Phe Ile Leu Glu Glu Glu Gln Arg				
292	297	302	307	
atc agg ctg gtg gtg agc cgg ctg ggc ctg gac tcc ctg tgc ccc ttc				1075
Ile Arg Leu Val Val Ser Arg Leu Gly Leu Asp Ser Leu Cys Pro Phe				
308	313	318	323	
agc cct aag gag cgg atc atc gag tac ctg gtc cct gag cgc ggg cct				1123
Ser Pro Lys Glu Arg Ile Ile Glu Tyr Leu Val Pro Glu Arg Gly Pro				
324	329	334	339	
gag cga ggc ctg ggc agc aag tcc ctg cgc gcc ttc gtg ggg gag gtg				1171
Glu Arg Gly Leu Gly Ser Lys Ser Leu Arg Ala Phe Val Gly Glu Val				
340	345	350	355	
ggt gcc cgc tct gcg gcc ccc ggg ggc ggc tgc gtg gcg gcg gcc gct				1219
Gly Ala Arg Ser Ala Ala Pro Gly Gly Gly Ser Val Ala Ala Ala Ala				
356	361	366	371	
gcg gcc atg ggt gcg gcg ctg ggc tcc atg gtg ggc ctc atg acc tac				1267
Ala Ala Met Gly Ala Ala Leu Gly Ser Met Val Gly Leu Met Thr Tyr				
372	377	382	387	
ggg cgg cgc caa ttc cag tcc ctg gac acg acg atg cgg cgc ctg atc				1315
Gly Arg Arg Gln Phe Gln Ser Leu Asp Thr Thr Met Arg Arg Leu Ile				
388	393	398	403	
ccg ccc ttc cgc gag gct tgc gcc aag cta acc acg ctg gtg gat gcc				1363
Pro Pro Phe Arg Glu Ala Ser Ala Lys Leu Thr Thr Leu Val Asp Ala				
404	409	414	419	

gac gcc gag gcc ttc acc gcc tac ctg gaa gca atg agg ctc ccc aag	1411
Asp Ala Glu Ala Phe Thr Ala Tyr Leu Glu Ala Met Arg Leu Pro Lys	
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aac aca cct gag gaa aag gac agg cgc acg gcg gcc cta cag gag ggt	1459
Asn Thr Pro Glu Glu Lys Asp Arg Arg Thr Ala Ala Leu Gln Glu Gly	
436 441 446 451	
ctg agg cgg gca gtc tct gtg ccg ctg acg ctg gcg gag acg gtg gcc	1507
Leu Arg Arg Ala Val Ser Val Pro Leu Thr Leu Ala Glu Thr Val Ala	
452 457 462 467	
tcg ctg tgg ccg gcg ctg cag gaa ctg gcc cgg tgt ggg aac ctg gcc	1555
Ser Leu Trp Pro Ala Leu Gln Glu Leu Ala Arg Cys Gly Asn Leu Ala	
468 473 478 483	
tgc cgg tca gac ctc cag gtg gcg gcc aaa gcc ctg gag atg ggc gtg	1603
Cys Arg Ser Asp Leu Gln Val Ala Ala Lys Ala Leu Glu Met Gly Val	
484 489 494 499	
ttt ggc gca tat ttc aac gtg ctc atc aac ctg agg gac atc aca gac	1651
Phe Gly Ala Tyr Phe Asn Val Leu Ile Asn Leu Arg Asp Ile Thr Asp	
500 505 510 515	
gag gca ttt aag gac cag atc cac cat cgt gtt tcc agc ctc ctg cag	1699
Glu Ala Phe Lys Asp Gln Ile His His Arg Val Ser Ser Leu Leu Gln	
516 521 526 531	
gaa gcc aag acc cag gct gca ctg gtg ctg gac tgc ttg gag acc cgg	1747
Glu Ala Lys Thr Gln Ala Ala Leu Val Leu Asp Cys Leu Glu Thr Arg	
532 537 542 547	
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Gln Glu *	
548	
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tacatgccgg atttaccgca aggaccgtaa tcatccgata tgcggttaccg aatggatgga 180
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cggatttgct ggtatctatg acaaggatga agccgagcgc attgtcgaaa atactgcata 360
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ttcccagata ttccgcccgc acattcgtgc atcgtcagaa ctgacacagg ccgaagcagt 540
aaaagctctt ggattcctga aacagaaagc cgcagagcag aaggtggcag c atg aca 597
Met Thr
1
ccg gac att atc ctg cag cgt acc ggg atc gat gtg aga gct gtc gaa 645
Pro Asp Ile Ile Leu Gln Arg Thr Gly Ile Asp Val Arg Ala Val Glu
3 8 13 18
cag ggg gaa gat gcg tgg cac aaa tta cgg ctg ggc gtc atc acc gct 693
Gln Gly Glu Asp Ala Trp His Lys Leu Arg Leu Gly Val Ile Thr Ala
19 24 29 34
tca gaa gtt cac aac gtg ata gca aaa ccc cgc tcc gga aag aag tgg 741
Ser Glu Val His Asn Val Ile Ala Lys Pro Arg Ser Gly Lys Lys Trp
35 40 45 50
cct gac atg aaa atg tcc tac ttc cac acc ctg ctt gct gag gtt tgc 789
Pro Asp Met Lys Met Ser Tyr Phe His Thr Leu Leu Ala Glu Val Cys
51 56 61 66
acc ggt gtg gct ccg gaa gtt aac gct aaa gca ctg gcc tgg gga aaa 837
Thr Gly Val Ala Pro Glu Val Asn Ala Lys Ala Leu Ala Trp Gly Lys

67

72

77

82

cag tac gag aac gac gcc aga acc ctg ttt gaa ttt act tcc ggc gtg	885
Gln Tyr Glu Asn Asp Ala Arg Thr Leu Phe Glu Phe Thr Ser Gly Val	
83 88 93 98	
aat gtt act gaa tcc ccg atc atc tat cgc gac gaa agt atg cgt acc	933
Asn Val Thr Glu Ser Pro Ile Ile Tyr Arg Asp Glu Ser Met Arg Thr	
99 104 109 114	
gcc tgc tct ccc gat ggt tta tgc agt gac ggc aac ggc ctt gaa ctg	981
Ala Cys Ser Pro Asp Gly Leu Cys Ser Asp Gly Asn Gly Leu Glu Leu	
115 120 125 130	
aaa tgc ccg ttt acc tcc cgg gat ttc atg aag ttc cgg ctc ggt ggt	1029
Lys Cys Pro Phe Thr Ser Arg Asp Phe Met Lys Phe Arg Leu Gly Gly	
131 136 141 146	
ttc gag gcc ata aag tca gct tac atg gcc cag gtg cag tac agc atg	1077
Phe Glu Ala Ile Lys Ser Ala Tyr Met Ala Gln Val Gln Tyr Ser Met	
147 152 157 162	
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Trp Val Thr Arg Lys Asn Ala Trp Tyr Phe Ala Asn Tyr Asp Pro Arg	
163 168 173 178	
atg aag cgt gaa ggc ctg cat tat gtc gtg att gag cgg gat gaa aag	1173
Met Lys Arg Glu Gly Leu His Tyr Val Val Ile Glu Arg Asp Glu Lys	
179 184 189 194	
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Tyr Met Ala Ser Phe Asp Glu Ile Val Pro Glu Phe Ile Glu Lys Met	
195 200 205 210	
gac gag gca ctg gct gaa att ggt ttt gta ttt ggg gag caa tgg cga	1269
Asp Glu Ala Leu Ala Glu Ile Gly Phe Val Phe Gly Glu Gln Trp Arg	
211 216 221 226	
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*	
227	
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ggctggctga ggagataaat aataaacgag gggctgtatg cacaaagcat cttctgttga	1446
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aataccagta gaaacagacg aagaatttca tacgttagcc gcatcccttt cacaaaagct	1566
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gcagcgtgag tattacgaag gtgttatctc ggatgggagt aagacgaaat cgtcgacccg 2526
ggaaaatccc gcggccatgg cggccgggag catgcgacgt cgggcccaat tcccctatag 2586
tgagtogaat g 2597

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Met Met Lys Lys Thr Leu Lys Cys Ile Arg Trp Ser Leu Pro
1 5 10
gaa atg gcc agc atc ggg ctg ctg ctg gcc atc cac ctg tgc ctc ttc 158
Glu Met Ala Ser Ile Gly Leu Leu Leu Ala Ile His Leu Cys Leu Phe
15 20 25 30
acc atg ttc gga atg ctg ctg ttc gct gga ggg aag cag gat gat ggg 206
Thr Met Phe Gly Met Leu Leu Phe Ala Gly Gly Lys Gln Asp Asp Gly
31 36 41 46
cag gac agg gag agg ctg acc tac ttc cag aac ctg cct gag tct ctg 254

Gln	Asp	Arg	Glu	Arg	Leu	Thr	Tyr	Phe	Gln	Asn	Leu	Pro	Glu	Ser	Leu		
47					52					57					62		
act	tcc	ctc	ctg	gtg	ctg	ctg	acc	acg	gcc	aac	aac	ccc	gat	gtg	atg	302	
Thr	Ser	Leu	Leu	Val	Leu	Leu	Thr	Thr	Ala	Asn	Asn	Pro	Asp	Val	Met		
63					68					73					78		
att	cct	gcg	tat	tcc	aag	aac	cgg	gcc	tat	gcc	atc	ttc	ttc	ata	gtc	350	
Ile	Pro	Ala	Tyr	Ser	Lys	Asn	Arg	Ala	Tyr	Ala	Ile	Phe	Phe	Ile	Val		
79					84					89					94		
ttc	act	gtg	ata	gga	agc	ctg	ttt	ctg	atg	aac	ctg	ctg	aca	gcc	atc	398	
Phe	Thr	Val	Ile	Gly	Ser	Leu	Phe	Leu	Met	Asn	Leu	Leu	Thr	Ala	Ile		
95					100					105					110		
atc	tac	agt	cag	ttc	cgg	ggc	tac	ctg	atg	aaa	tct	ctc	cag	acc	tcg	446	
Ile	Tyr	Ser	Gln	Phe	Arg	Gly	Tyr	Leu	Met	Lys	Ser	Leu	Gln	Thr	Ser		
111					116					121					126		
ctg	ttt	cgg	agg	cgg	ctg	gga	acc	cgg	gct	gcc	ttt	gaa	gtc	cta	tcc	494	
Leu	Phe	Arg	Arg	Arg	Leu	Gly	Thr	Arg	Ala	Ala	Phe	Glu	Val	Leu	Ser		
127					132					137					142		
tcc	atg	gtg	ggg	gag	gga	gga	gcc	ttc	cct	cag	gca	gtt	ggg	gtg	aag	542	
Ser	Met	Val	Gly	Glu	Gly	Gly	Ala	Phe	Pro	Gln	Ala	Val	Gly	Val	Lys		
143					148					153					158		
ccc	cag	aac	ttg	ctg	cag	gtg	ctt	cag	aag	gtc	cag	ctg	gac	agc	tcc	590	
Pro	Gln	Asn	Leu	Leu	Gln	Val	Leu	Gln	Lys	Val	Gln	Leu	Asp	Ser	Ser		
159					164					169					174		
cac	aaa	cag	gcc	atg	atg	gag	aag	gtg	cgt	tcc	tac	ggc	agt	gtt	ctg	638	
His	Lys	Gln	Ala	Met	Met	Glu	Lys	Val	Arg	Ser	Tyr	Gly	Ser	Val	Leu		
175					180					185					190		
ctg	tca	gct	gag	gag	ttt	cag	aag	ctc	ttc	aac	gag	ctt	gac	aga	agt	686	
Leu	Ser	Ala	Glu	Glu	Phe	Gln	Lys	Leu	Phe	Asn	Glu	Leu	Asp	Arg	Ser		
191					196					201					206		
gtg	gtt	aaa	gag	cac	ccg	ccg	agg	ccc	gag	tac	cag	tct	ccg	ttt	ctg	734	
Val	Val	Lys	Glu	His	Pro	Pro	Arg	Pro	Glu	Tyr	Gln	Ser	Pro	Phe	Leu		
207					212					217					222		
cag	agc	gcc	cag	ttc	ctc	ttc	ggc	cac	tac	tac	ttt	gac	tac	ctg	ggg	782	
Gln	Ser	Ala	Gln	Phe	Leu	Phe	Gly	His	Tyr	Tyr	Phe	Asp	Tyr	Leu	Gly		
223					228					233					238		
aac	ctc	atc	gcc	ctg	gca	aac	ctg	gtg	tcc	att	tgc	gtg	ttc	ctg	gtg	830	
Asn	Leu	Ile	Ala	Leu	Ala	Asn	Leu	Val	Ser	Ile	Cys	Val	Phe	Leu	Val		
239					244					249					254		
ctg	gat	gca	gat	gtg	ctg	cct	gct	gag	cgt	gat	gac	ttc	atc	ctg	ggg	878	
Leu	Asp	Ala	Asp	Val	Leu	Pro	Ala	Glu	Arg	Asp	Asp	Phe	Ile	Leu	Gly		
255					260					265					270		
att	ctc	aac	tgc	gtc	ttc	att	gtg	tac	tac	ctg	ttg	gag	atg	ctg	ctc	926	
Ile	Leu	Asn	Cys	Val	Phe	Ile	Val	Tyr	Tyr	Leu	Leu	Glu	Met	Leu	Leu		

271	276	281	286	
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Lys Val Phe Ala Leu Gly Leu Arg Gly Tyr Leu Ser Tyr Pro Ser Asn				
287	292	297	302	
gtg ttt gac ggg ctc ctc acc gtt gtc ctg ctg gtt ttg gag atc tca				1022
Val Phe Asp Gly Leu Leu Thr Val Val Leu Leu Val Leu Glu Ile Ser				
303	308	313	318	
act ctg gct gtg tac cga ttg cca cac cca ggc tgg agg ccg gag atg				1070
Thr Leu Ala Val Tyr Arg Leu Pro His Pro Gly Trp Arg Pro Glu Met				
319	324	329	334	
gtg ggc ctg ctg tcg ctg tgg gac atg acc cgc atg ctg aac atg ctc				1118
Val Gly Leu Leu Ser Leu Trp Asp Met Thr Arg Met Leu Asn Met Leu				
335	340	345	350	
atc gtg ttc cgc ttc ctg cgt atc atc ccc agc atg aag ccg atg gcc				1166
Ile Val Phe Arg Phe Leu Arg Ile Ile Pro Ser Met Lys Pro Met Ala				
351	356	361	366	
gtg gtg gcc agt acc gtc ctg ggc ctg gtg cag aac atg cgt gcg ttt				1214
Val Val Ala Ser Thr Val Leu Gly Leu Val Gln Asn Met Arg Ala Phe				
367	372	377	382	
ggc ggg atc ctg gtg gtg gtc tac tac gta ttt gcc atc att ggg atc				1262
Gly Gly Ile Leu Val Val Val Tyr Tyr Val Phe Ala Ile Ile Gly Ile				
383	388	393	398	
aac ttg ttt aga ggc gtc att gtg gct ctt cct gga aac agc agc ctg				1310
Asn Leu Phe Arg Gly Val Ile Val Ala Leu Pro Gly Asn Ser Ser Leu				
399	404	409	414	
gcc cct gcc aat ggc tcg gcg ccc tgt ggg agc ttc gag cag ctg gag				1358
Ala Pro Ala Asn Gly Ser Ala Pro Cys Gly Ser Phe Glu Gln Leu Glu				
415	420	425	430	
tac tgg gcc aac aac ttc gat gac ttt gcg gct gcc ctg gtc act ctg				1406
Tyr Trp Ala Asn Asn Phe Asp Asp Phe Ala Ala Ala Leu Val Thr Leu				
431	436	441	446	
tgg aac ttg atg gtg gtg aac aac tgg cag gtg ttt ctg gat gca tat				1454
Trp Asn Leu Met Val Val Asn Asn Trp Gln Val Phe Leu Asp Ala Tyr				
447	452	457	462	
cgg cgc tac tca ggc ccg tgg tcc aag atc tat ttt gta ttg tgg tgg				1502
Arg Arg Tyr Ser Gly Pro Trp Ser Lys Ile Tyr Phe Val Leu Trp Trp				
463	468	473	478	
ctg gtg tcg tct gtc atc tgg gtc aac ctg ttt ctg gcc ctg att ctg				1550
Leu Val Ser Ser Val Ile Trp Val Asn Leu Phe Leu Ala Leu Ile Leu				
479	484	489	494	
gag aac ttc ctt cac aag tgg gac ccc cgc agc cac ctg cag ccc ctt				1598
Glu Asn Phe Leu His Lys Trp Asp Pro Arg Ser His Leu Gln Pro Leu				
495	500	505	510	

gct ggg acc cca gag gcc acc tac cag atg act gtg gag ctc ctg ttc	1646
Ala Gly Thr Pro Glu Ala Thr Tyr Gln Met Thr Val Glu Leu Leu Phe	
511 516 521 526	
agg gat att ctg gag gag ccc gag gag gat gag ctc aca gag agg ctg	1694
Arg Asp Ile Leu Glu Glu Pro Glu Glu Asp Glu Leu Thr Glu Arg Leu	
527 532 537 542	
agc cag cac ccg cac ctg tgg ctg tgc agg tga cgtccggg ctgccgtccc	1745
Ser Gln His Pro His Leu Trp Leu Cys Arg *	
543 548 553	
agcagggggcg gcaggagaga gaggctggcc tacacaggtg cccgtcatgg aagaggcggc	1805
catgctgtgg ccagccaggc aggaagagac ctttctctg acggaccact aagctgggga	1865
caggaaccaa gtcctttgcg tgtggcccaa caaccatcta cagaacagct gctggtgctt	1925
cagggaggcg ccgtgccctc cgctttcttt tatagctgct tcagtgagaa ttccctcgtc	1985
gactccacag ggacctttca gacaaaaatg caagaagcag cggcctcccc tgtccctgac	2045
agcttccgtg gtgcctttgc tgcgggcagc ccttggggac cacaggcctg accagggcct	2105
gcacaggtta accgtcagac ttccggggca ttcagggtgg gatgctggtg gtttgacatg	2165
gagagaacct tgactgtgtt ttattatttc atggcttgta tgagtgtgac tgggtgtgtt	2225
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a	2286

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 <222> (626)..(2614)

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gtcaagcaat agtgaaccaa aatgcagaga cagaacttat gctggaagga gacgatgatg	180
cagtcagtct gctacaggag aaagaaattg acaaccttgc aggccagtg gttctcagca	240
cccctgccca gctcatcgct cccgtgggtg tggccaaggg gactctctcc atcaccacga	300
cagaaatcta cttcgaggta gatgaggatg actctgcctt caagaagatc gacacgaaag	360

ttcttgcata cactgagggga cttcacggaa aatggatggt cagcgagata cgagctgtat	420
tttcaagacg ttaccttcta caaaacactg ctttggaagt atttatggca aaccgaacct	480
cagttatggt taatttcctt gatcaagcaa cagtaaaaaa agttgtctat agcttgccctc	540
gggttgaggat agggaccagc tatgggtctgc cacaagccag gaggatatca ttggccactc	600
ctcgacagct ttataaattt ccaat atg act cag cgc tgg caa aga agg gaa	652
Met Thr Gln Arg Trp Gln Arg Arg Glu	
1 5	
att tca aac ttc gaa tat ttg atg ttc ctt aat act att gca gga cgg	700
Ile Ser Asn Phe Glu Tyr Leu Met Phe Leu Asn Thr Ile Ala Gly Arg	
10 15 20 25	
aca tat aat gat ctg aac caa tat cca gtg ttt ccg tgg gtg tta acc	748
Thr Tyr Asn Asp Leu Asn Gln Tyr Pro Val Phe Pro Trp Val Leu Thr	
26 31 36 41	
aac tat gaa tca gaa gag ttg gac ctg act ctt cca gga aac ttc agg	796
Asn Tyr Glu Ser Glu Glu Leu Asp Leu Thr Leu Pro Gly Asn Phe Arg	
42 47 52 57	
gat cta tca aag cca att ggt gct ttg aac ccc aag aga gct gtg ttt	844
Asp Leu Ser Lys Pro Ile Gly Ala Leu Asn Pro Lys Arg Ala Val Phe	
58 63 68 73	
tat gca gag cgt tat gag aca tgg gaa gat gat caa agc cca ccc tac	892
Tyr Ala Glu Arg Tyr Glu Thr Trp Glu Asp Asp Gln Ser Pro Pro Tyr	
74 79 84 89	
cat tat aat acc cat tat tca aca gca aca tct act tta tcc tgg ctt	940
His Tyr Asn Thr His Tyr Ser Thr Ala Thr Ser Thr Leu Ser Trp Leu	
90 95 100 105	
gtt cga att gaa cct ttc aca acc ttc ttc ctc aat gca aat gat gga	988
Val Arg Ile Glu Pro Phe Thr Thr Phe Phe Leu Asn Ala Asn Asp Gly	
106 111 116 121	
aaa ttt gat cat cca gat cga acc ttc tca tcc gtt gca agg tct tgg	1036
Lys Phe Asp His Pro Asp Arg Thr Phe Ser Ser Val Ala Arg Ser Trp	
122 127 132 137	
aga act agt cag aga gat act tct gat gta aag gaa cta att cca gag	1084
Arg Thr Ser Gln Arg Asp Thr Ser Asp Val Lys Glu Leu Ile Pro Glu	
138 143 148 153	
ttc tac tac cta cca gag atg ttt gtc aac agt aat gga tat aat ctt	1132
Phe Tyr Tyr Leu Pro Glu Met Phe Val Asn Ser Asn Gly Tyr Asn Leu	
154 159 164 169	
gga gtc aga gaa gat gaa gta gtg gta aat gat gtt gat ctt ccc cct	1180
Gly Val Arg Glu Asp Glu Val Val Val Asn Asp Val Asp Leu Pro Pro	
170 175 180 185	

tgg gca aaa aaa cct gaa gac ttt gtg cgg atc aac agg atg gcc cta	1228
Trp Ala Lys Lys Pro Glu Asp Phe Val Arg Ile Asn Arg Met Ala Leu	
186 191 196 201	
gaa agt gaa ttt gtt tct tgc caa ctt cat cag tgg atc gac ctt ata	1276
Glu Ser Glu Phe Val Ser Cys Gln Leu His Gln Trp Ile Asp Leu Ile	
202 207 212 217	
ttt ggc tat aag cag cga gga cca gaa gca gtt cgt gct ctg aat gtt	1324
Phe Gly Tyr Lys Gln Arg Gly Pro Glu Ala Val Arg Ala Leu Asn Val	
218 223 228 233	
ttt cac tac ttg act tat gaa ggc tct gtg aac ctg gat agt atc act	1372
Phe His Tyr Leu Thr Tyr Glu Gly Ser Val Asn Leu Asp Ser Ile Thr	
234 239 244 249	
gat cct gtg ctc agg gag gcc atg gag gca cag ata cag aac ttt gga	1420
Asp Pro Val Leu Arg Glu Ala Met Glu Ala Gln Ile Gln Asn Phe Gly	
250 255 260 265	
cag acg cca tct cag ttg ctt att gag cca cat ccg cct cgg agc tct	1468
Gln Thr Pro Ser Gln Leu Leu Ile Glu Pro His Pro Pro Arg Ser Ser	
266 271 276 281	
gcc atg cac ctg tgt ttc ctt cca cag agt ccg ctc atg ttt aaa gat	1516
Ala Met His Leu Cys Phe Leu Pro Gln Ser Pro Leu Met Phe Lys Asp	
282 287 292 297	
cag atg caa cag gat gtg ata atg gtg ctg aag ttt cct tca aat tct	1564
Gln Met Gln Gln Asp Val Ile Met Val Leu Lys Phe Pro Ser Asn Ser	
298 303 308 313	
cca gta acc cat gtg gca gcc aac act ctg ccc cac ttg acc atc ccc	1612
Pro Val Thr His Val Ala Ala Asn Thr Leu Pro His Leu Thr Ile Pro	
314 319 324 329	
gca gtg gtg aca gtg act tgc agc cga ctc ttt gca gtg aat aga tgg	1660
Ala Val Val Thr Val Thr Cys Ser Arg Leu Phe Ala Val Asn Arg Trp	
330 335 340 345	
cac aac aca gta ggc ctc aga gga gct cca gga tac tcc ttg gat caa	1708
His Asn Thr Val Gly Leu Arg Gly Ala Pro Gly Tyr Ser Leu Asp Gln	
346 351 356 361	
gcc cac cat ctt ccc att gaa atg gat cca tta ata gcc aat aat tca	1756
Ala His His Leu Pro Ile Glu Met Asp Pro Leu Ile Ala Asn Asn Ser	
362 367 372 377	
ggt gta aac aaa cgg cag atc aca gac ctc gtt gac cag agt ata caa	1804
Gly Val Asn Lys Arg Gln Ile Thr Asp Leu Val Asp Gln Ser Ile Gln	
378 383 388 393	
atc aat gca cat tgt ttt gtg gta aca gca gat aat cgc tat att ctt	1852
Ile Asn Ala His Cys Phe Val Val Thr Ala Asp Asn Arg Tyr Ile Leu	
394 399 404 409	
atc tgt gga ttc tgg gat aag agc ttc aga gtt tat tct aca gaa aca	1900

634	639	644	649	
gat ttt aat cgg tgg cat tat gag cat cag aac aga tac tga agataaa				2621
Asp Phe Asn Arg Trp His Tyr Glu His Gln Asn Arg Tyr *				
650	655	660		
ggaagaacca aaagccaagt taaagctgag agcacaagtg ctgcatggaa aggcaatatc				2681
tctggtggaa aaaactcgtc tacatcgacc tccgtttgta cattccatca caccagcaa				2741
tagctgtaca ttgtagtcag caaccatttt actttgtgtg ttttttcacg actgaacacc				2801
agctgctatc aagcaagctt atatcatgta aattatatga attaggagat gttttggtaa				2861
ttatttcata tattgttggt tattgagaaa aggttgtagg atgtgtcaca agagactttt				2921
gacaattctg aggaaccttg tgtccagttg ttacaaagtt taagctttga acctaacctg				2981
catcccattt ccagcctctt ttcaagctga gaaaaaaaaa aaaaaaacag tttgatactt				3041
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agaaaaaaaa aaa				3114

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 <220>
 <221> CDS
 <222> (58) .. (336)

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atg tac ata aag cca tct acc agg aaa tca ggc tac tca cct cag cag	105
Met Tyr Ile Lys Pro Ser Thr Arg Lys Ser Gly Tyr Ser Pro Gln Gln	
1 5 10 15	
gta gct gtg atc cac tgc aaa gga cat caa aaa gaa aac acg gcc gtt	153
Val Ala Val Ile His Cys Lys Gly His Gln Lys Glu Asn Thr Ala Val	
17 22 27 32	
gcc cat agt aac cag aaa gct gat tca gca gct cag gtc act gcc aga	201
Ala His Ser Asn Gln Lys Ala Asp Ser Ala Ala Gln Val Thr Ala Arg	
33 38 43 48	
ctt tca gtc acg cct cca aac ttg ctg ccc aca gtc tcc ttt cca cag	249
Leu Ser Val Thr Pro Pro Asn Leu Leu Pro Thr Val Ser Phe Pro Gln	
49 54 59 64	
cca gat ctg cct gac aat ccc gta tac tca aca aca aca gaa aaa ctg	297
Pro Asp Leu Pro Asp Asn Pro Val Tyr Ser Thr Thr Thr Glu Lys Leu	
65 70 75 80	

gct tca gat ctc aga gcc aat aaa aat cag gaa agt tag tagattcttc 346
 Ala Ser Asp Leu Arg Ala Asn Lys Asn Gln Glu Ser *
 81 86 91

ctgactctgg aatcttcata ccttgaactt aaaccagtta cctacagtct accacccatt 406

taagaagagc aaagttacct cagctcctcc ggaggg 442

<210> 52
 <211> 3735
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1890)..(2096)

<220>
 <221> misc_feature
 <222> (1)...(3735)
 <223> n = a,t,c or g

<400> 52
 ctctgtggcc ccactcctcc ctcccatgtg tatgctntga gccgttcctt agttgagtag 60
 gtgattgacc ataccagcag cactggtgcc aattaagcgg tctgcttggt tcacacagcc 120
 tttcattcct gttctagcat ggctctgtct taaatctgca tgcattgtatt tattccttaa 180
 tatattacct ctcttccttt ctctcttttt acatttcttc ccatttttta ttgtttctct 240
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 ccacgtctca ctcttactt ccttcctgca ttcatagcat ccttccttcc tgcttgctct 420
 ctttttatta ggcatttatt cctctattag tggagtcagg tgcccttatg acaagtctta 480
 gcctaactct tctcgtggat ctacccattt atccatttgg ttgttatttc tttttaccgt 540
 tcctttctct cttctgtcat agctttccat acctcctgtc cttcatttcc atgcagctgg 600
 ggtgcccagg ggggacccca acaccctcat caggaggacc catggggcca tgtcttctca 660
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 cttttgccac catcgatcgc attgccttct tttacatctt tatttaccac ccattaatgt 840
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tctcatatcc tttcatctaa cagacctcag tgcccaggac tggatgactc aaaacccctc	960
acaacatctt gtcacctggc gctgcactcc cactgctcat tcatccatcc acacacgcaa	1020
tgtagacttt ttggcctttt tttctttctt ttgtcattta tttatttatg tgcagacttc	1080
aagtgtcag gcttagataa cttttggtaa aagtacactc tcatctttcg cccactgggt	1140
cctctttctt tctttgctat tctttgaact cgttctctgt ggtttatttt tctatgccag	1200
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acagtatctt tggcattcct gcttcttctc actgagtcac caaccaaggt acacacagcc	1860
cacagtccag aaacacacac aaatggcgg atg cag agc aga gac aca gtg aat	1913
Met Gln Ser Arg Asp Thr Val Asn	
1 5	
gtt aag ttt act ccc aga tcc ttc tgg ggc tcg cgt cct aaa cat act	1961
Val Lys Phe Thr Pro Arg Ser Phe Trp Gly Ser Arg Pro Lys His Thr	
9 14 19 24	
ggg ggc aga tct gag atg agg gcc cac gtt ccc cag gcc ccc tgg gca	2009
Gly Gly Arg Ser Glu Met Arg Ala His Val Pro Gln Ala Pro Trp Ala	
25 30 35 40	
agg caa gcg ccg cct gtt ctg ccc ctc tgg acc gtg gtg aat gac cat	2057
Arg Gln Ala Pro Pro Val Leu Pro Leu Trp Thr Val Val Asn Asp His	
41 46 51 56	
ccc cat gag aaa cct gtt tca aga ccc cag aat aca tag agacacacac	2106
Pro His Glu Lys Pro Val Ser Arg Pro Gln Asn Thr *	
57 62 67	
atggtacata gtctcctggt gggaaacgac ggacatggag ttcattttta aataggtggc	2166
tttgtctgtg gcaatataaa aatatttttg cctttcaagg caaatacaaa agaaactacc	2226
cattaacatg gctgagtgtc tcagtcccaa acaataaaga acttgaagag gtttagccgg	2286

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ccagaaaagg	ataggaagat	cttcagagag	gtggggcgctg	cctttggtga	ttcagtagca	3066
tgctcattcc	agaagcccac	ccagggcctt	ggagttgcca	gcaggatgct	ggccaagccc	3126
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gtttgctagc	agggtgaacac	aagcaaagac	ttataggaaa	gtactcatag	agtcaaagta	3306
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gtcttttaggt	aagagggaca	gctggctggg	cagttccggt	cctcttcatc	ctttgccatc	3426
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agaggaggtg	gtccttgaag	acaaggaggt	ggacggatga	tgtcatccct	gaggagagac	3606
ccgggtgagg	gacctctctg	tgggcgcccc	agctctcctg	aggagccgcc	gccaaaggcca	3666
gcgagccaag	gcgcgctccc	tctctgccgg	acgcgtgggt	cgaccgggga	attccggagc	3726
ggtacctaa						3735

<210> 53
<211> 2868
<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (431)..(1924)

<220>

<221> misc_feature

<222> (1)...(2868)

<223> n = a,t,c or g

<400> 53

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gcgagccgcc gtgagcactc ggattcaagc cggcgccaac gagtccgggg gcatcgcccc 180
cagcggccaa gctcatggcc ggctgagcgg gacgccgcct ccgcctcagc caccgccgcc 240
gccgncgcct cctcctcctc agccggcggc ggcccgggcc cagcaaccat ggctgaagac 300
tactgggacg ggcgctcgcg gcgaacagga ggagaaggag gtcgcgcggc ctcaccccg 360
gccgccgccc caggcgccgc cgcgccggcc ccgcggctct gaggttgctc gcgcgcccc 420
gccgatcgcc atg gat cgg atg aag aag atc aaa cgg cag ctg tca atg 469
Met Asp Arg Met Lys Lys Ile Lys Arg Gln Leu Ser Met
1 5 10
aca ctc cga ggt ggc cga ggc ata gac aag acc aat ggt gcc cct gag 517
Thr Leu Arg Gly Gly Arg Gly Ile Asp Lys Thr Asn Gly Ala Pro Glu
14 19 24 29
cag ata ggc ctg gat gag agt ggt ggt ggt ggc ggc agt gac cct gga 565
Gln Ile Gly Leu Asp Glu Ser Gly Gly Gly Gly Gly Ser Asp Pro Gly
30 35 40 45
gag gcc ccc aca cgt gct gct cct ggg gaa ctt cgt tct gca cgg ggc 613
Glu Ala Pro Thr Arg Ala Ala Pro Gly Glu Leu Arg Ser Ala Arg Gly
46 51 56 61
cca ctc agc tct gca cca gag att gtg cac gag gac ttg aag atg ggg 661
Pro Leu Ser Ser Ala Pro Glu Ile Val His Glu Asp Leu Lys Met Gly
62 67 72 77
tct gat ggg gag agt gac cag gct tca gcc acg tcc tcg gat gag gtg 709
Ser Asp Gly Glu Ser Asp Gln Ala Ser Ala Thr Ser Ser Asp Glu Val
78 83 88 93
cag tct cca gtg aga gtg cgt atg cgc aac cat ccc cca cgc aag atc 757
Gln Ser Pro Val Arg Val Arg Met Arg Asn His Pro Pro Arg Lys Ile
94 99 104 109
tcc act gag gac atc aac aag cgc cta tca cta cca gct gac atc cgg 805
Ser Thr Glu Asp Ile Asn Lys Arg Leu Ser Leu Pro Ala Asp Ile Arg
110 115 120 125

tgc atc ttc tat gag atg gcc aca ggc cgt ccc ctc ttt ccg ggc tcc	1525
Cys Ile Phe Tyr Glu Met Ala Thr Gly Arg Pro Leu Phe Pro Gly Ser	
350 355 360 365	
acg gtg gag gaa cag cta cac ttc atc ttc cgt atc tta gga acc cca	1573
Thr Val Glu Glu Gln Leu His Phe Ile Phe Arg Ile Leu Gly Thr Pro	
366 371 376 381	
act gag gag acg tgg cca ggc atc ctg tcc aac gag gag ttc aag aca	1621
Thr Glu Glu Thr Trp Pro Gly Ile Leu Ser Asn Glu Glu Phe Lys Thr	
382 387 392 397	
tac aac tac ccc aag tac cga gcc gag gcc ctt ttg agc cac gca ccc	1669
Tyr Asn Tyr Pro Lys Tyr Arg Ala Glu Ala Leu Leu Ser His Ala Pro	
398 403 408 413	
cga ctt gat agc gac ggg gcc gac ctc ctc acc aag ctg ttg cag ttt	1717
Arg Leu Asp Ser Asp Gly Ala Asp Leu Leu Thr Lys Leu Leu Gln Phe	
414 419 424 429	
gag ggt cga aat cgg atc tcc gca gag gat gcc atg aaa cat cca ttc	1765
Glu Gly Arg Asn Arg Ile Ser Ala Glu Asp Ala Met Lys His Pro Phe	
430 435 440 445	
ttc ctc agt ctg ggg gag cgg atc cac aaa ctt cct gac act act tcc	1813
Phe Leu Ser Leu Gly Glu Arg Ile His Lys Leu Pro Asp Thr Thr Ser	
446 451 456 461	
ata ttt gca cta aag gag att cag cta caa aag gag gcc agc ctt cgg	1861
Ile Phe Ala Leu Lys Glu Ile Gln Leu Gln Lys Glu Ala Ser Leu Arg	
462 467 472 477	
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Ser Leu Pro His *	
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gccctgagag cc atg ggg ctc cac ctg tgg gct gca ggc cca gga acc 228
Met Gly Leu His Leu Trp Ala Ala Gly Pro Gly Thr
1 5 10
cac cct gct gga att agc gat ttg ctg gct gaa gtg tcc gct gaa gtg 276
His Pro Ala Gly Ile Ser Asp Leu Leu Ala Glu Val Ser Ala Glu Val
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Asp Gly Pro Val Pro Gly Tyr Leu Ser Ser Pro Gln Ser Ile Thr Asp
29 34 39 44
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Thr Cys Leu Tyr Ile Phe Thr Ser Gly Thr Thr Gly Leu Pro Lys Ala
45 50 55 60
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Ala Arg Ile Ser His Leu Lys Ile Leu Gln Cys Gln Gly Phe Tyr Gln
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77 82 87 92

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Glu	Asp	Cys	Gln	Gln	His	Arg	Val	Thr	Val	Phe	Gln	Tyr	Ile	Gly	Glu	
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Ala	Pro	Val	Ser	Gln	Gln	Ser	Pro	Phe	Leu	Gly	Tyr	Ala	Gly	Gly	Pro	
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Glu	Leu	Ala	Gln	Gly	Lys	Leu	Leu	Lys	Asp	Val	Phe	Arg	Pro	Gly	Asp	
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Gln Val Glu Thr Tyr Leu Arg Ser Glu Gly Val Leu Val Arg Tyr Trp		
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Tyr Pro Ile Asp Met Leu Glu Arg Pro Pro Ala Gly Tyr Arg Arg Thr		
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Arg	His	Pro	Ala	Gly	Leu	Ser	Ser	Ser	Ile	Ala	Leu	Gln	Leu	Asn	Pro	
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Cys	Leu	Ala	Met	Leu	Met	Ala	Leu	Gln	Ser	Glu	Leu	His	L			

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Leu Ser Asp Ser Ser Ser Ser Ser Ser Ser Pro Gly Gln Thr Pro				
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Ile Tyr Ile Pro Leu Gln Glu Glu Asp Thr Lys Lys Pro Lys Asp Lys				
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gcc gag ggc ggg gac ggg aaa gtt gag ccc gag aag aca ctg gcc ttc				2189
Ala Glu Gly Gly Asp Gly Lys Val Glu Pro Glu Lys Thr Leu Ala Phe				
662	667	672	677	

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Pro Gly Thr Asp Ser Met Glu Val Ser Thr Ser Ser Ser Leu Thr Pro	
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Val Leu Asn Ala Thr Val Gln Arg Thr Ala Asp His Ala Ala Pro Glu	
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1214 1219 1224 1229	

gaa gac cca cgt ttc ctc agt gag agc agc agt ggc cca gcc ccg cac	3926
Glu Asp Pro Arg Phe Leu Ser Glu Ser Ser Ser Gly Pro Ala Pro His	
1230 1235 1240 1245	
ggt gag cct gct cgc cgc gct tcc cac aac gag ctg cct cac acc gag	3974
Gly Glu Pro Ala Arg Arg Ala Ser His Asn Glu Leu Pro His Thr Glu	
1246 1251 1256 1261	
ctc tcc agc cag acg ccc tac aca ctc aac ttc agc ttc gaa gag ctg	4022
Leu Ser Ser Gln Thr Pro Tyr Thr Leu Asn Phe Ser Phe Glu Glu Leu	
1262 1267 1272 1277	
aac acg ctt ggc ctg gat gaa ggt gcc cct cgt cac agt aat cta agt	4070
Asn Thr Leu Gly Leu Asp Glu Gly Ala Pro Arg His Ser Asn Leu Ser	
1278 1283 1288 1293	
tgg cag tca caa act cgc aga acc cca agt ctt tcg agt ctc aat tcc	4118
Trp Gln Ser Gln Thr Arg Arg Thr Pro Ser Leu Ser Ser Leu Asn Ser	
1294 1299 1304 1309	
cag gat tcc agt att gaa att tca aag ctt act gat aag gtg cag gcc	4166
Gln Asp Ser Ser Ile Glu Ile Ser Lys Leu Thr Asp Lys Val Gln Ala	
1310 1315 1320 1325	
gag tat aga gat gcc tat aga gaa tac att gct cag atg tcc cag tta	4214
Glu Tyr Arg Asp Ala Tyr Arg Glu Tyr Ile Ala Gln Met Ser Gln Leu	
1326 1331 1336 1341	
gaa ggg ggc ccc ggg tct aca acc att agt ggc aga tct tct cca cat	4262
Glu Gly Gly Pro Gly Ser Thr Thr Ile Ser Gly Arg Ser Ser Pro His	
1342 1347 1352 1357	
agc aca tat tac atg ggt cag agt tca tca ggg ggc tct att cat tca	4310
Ser Thr Tyr Tyr Met Gly Gln Ser Ser Ser Gly Gly Ser Ile His Ser	
1358 1363 1368 1373	
aac cta gag caa gaa aag ggg aag gat agt gaa cca aag ccc gat gat	4358
Asn Leu Glu Gln Glu Lys Gly Lys Asp Ser Glu Pro Lys Pro Asp Asp	
1374 1379 1384 1389	
ggg agg aag tcc ttt cta atg aag agg gga gat gtt atc gat tat tca	4406
Gly Arg Lys Ser Phe Leu Met Lys Arg Gly Asp Val Ile Asp Tyr Ser	
1390 1395 1400 1405	
tca tca ggg gtt tcc acc aac gat gct tcc ccc ctg gat cct atc act	4454
Ser Ser Gly Val Ser Thr Asn Asp Ala Ser Pro Leu Asp Pro Ile Thr	
1406 1411 1416 1421	
gaa gaa gat gaa aaa tca gat cag tca ggc agt aag ctt ctc cca ggc	4502
Glu Glu Asp Glu Lys Ser Asp Gln Ser Gly Ser Lys Leu Leu Pro Gly	
1422 1427 1432 1437	
aag aaa tct tcc gaa agg tca agc ctc ttc cag aca gat ttg aag ctt	4550
Lys Lys Ser Ser Glu Arg Ser Ser Leu Phe Gln Thr Asp Leu Lys Leu	
1438 1443 1448 1453	
aag gga agt ggg ctg cgc tat caa aaa ctc cca agt gac gag gat gaa	4598

Lys Gly Ser Gly Leu Arg Tyr Gln Lys Leu Pro Ser Asp Glu Asp Glu	
1454 1459 1464 1469	
tct ggc aca gaa gaa tca gat aac act cca ctg ctc aaa gat gac aaa	4646
Ser Gly Thr Glu Glu Ser Asp Asn Thr Pro Leu Leu Lys Asp Asp Lys	
1470 1475 1480 1485	
gac aga aaa gcc gaa ggg aaa gta gag aga gtg ccg aag tct cca gaa	4694
Asp Arg Lys Ala Glu Gly Lys Val Glu Arg Val Pro Lys Ser Pro Glu	
1486 1491 1496 1501	
cac agt gct gag ccg atc aga acc ttc att aaa gcc aaa gag tat tta	4742
His Ser Ala Glu Pro Ile Arg Thr Phe Ile Lys Ala Lys Glu Tyr Leu	
1502 1507 1512 1517	
tcg gat gcg ctc ctt gac aaa aag gat tca tcg gat tca gga gtg aga	4790
Ser Asp Ala Leu Leu Asp Lys Lys Asp Ser Ser Asp Ser Gly Val Arg	
1518 1523 1528 1533	
tcc agt gaa agt tct ccc aat cac tct ctg cac aat gaa gtg gcg gat	4838
Ser Ser Glu Ser Ser Pro Asn His Ser Leu His Asn Glu Val Ala Asp	
1534 1539 1544 1549	
gac tcc cag ctt gaa aag gca aat ctc ata gag ctg gaa gat gac agt	4886
Asp Ser Gln Leu Glu Lys Ala Asn Leu Ile Glu Leu Glu Asp Asp Ser	
1550 1555 1560 1565	
cac agc gga aag cgg gga atc cca cat agc ctg agt ggc ctg caa gat	4934
His Ser Gly Lys Arg Gly Ile Pro His Ser Leu Ser Gly Leu Gln Asp	
1566 1571 1576 1581	
cca att ata gct cgg atg tcc att tgt tca gaa gac aag aaa agc cct	4982
Pro Ile Ile Ala Arg Met Ser Ile Cys Ser Glu Asp Lys Lys Ser Pro	
1582 1587 1592 1597	
tcc gaa tgc agc ttg ata gcc agc agc cct gaa gaa aac tgg cct gca	5030
Ser Glu Cys Ser Leu Ile Ala Ser Ser Pro Glu Glu Asn Trp Pro Ala	
1598 1603 1608 1613	
tgc cag aaa gcc tac aac ctg aac cga act ccc agc acc gtg act ctg	5078
Cys Gln Lys Ala Tyr Asn Leu Asn Arg Thr Pro Ser Thr Val Thr Leu	
1614 1619 1624 1629	
aac aac aat agt gct cca gcc aac aga gcc aat caa aat ttc gat gag	5126
Asn Asn Asn Ser Ala Pro Ala Asn Arg Ala Asn Gln Asn Phe Asp Glu	
1630 1635 1640 1645	
atg gag gga att agg gag act tct caa gtc att ttg agg cct agt tcc	5174
Met Glu Gly Ile Arg Glu Thr Ser Gln Val Ile Leu Arg Pro Ser Ser	
1646 1651 1656 1661	
agt ccc aac cca acc act att cag aat gag aat cta aaa agc atg aca	5222
Ser Pro Asn Pro Thr Thr Ile Gln Asn Glu Asn Leu Lys Ser Met Thr	
1662 1667 1672 1677	
cat aag cga agc caa cgt tca agt tac aca agg ctc tcc aaa gat cct	5270
His Lys Arg Ser Gln Arg Ser Ser Tyr Thr Arg Leu Ser Lys Asp Pro	

1678	1683	1688	1693	
ccg gag ctc cat gca gca gcc tct tct gag agc aca ggc ttt gga gaa				5318
Pro Glu Leu His Ala Ala Ala Ser Ser Glu Ser Thr Gly Phe Gly Glu				
1694	1699	1704	1709	
gaa aga gaa agc att ctt tga ga aaaacaagca aaggagaaga gtgttactgt				5371
Glu Arg Glu Ser Ile Leu *				
1710	1715			
acccttatga cagaattgtc ctggattttg actccatcca cgcccatcac ctttctacat				5431
tttgctgaca gataactaac cgatgatgag gccgaggtaa aagagacatc tgcagtgtga				5491
cagaagggag catgagaagc atggctcacc agccagcctc tgtggtcttt gtaattagaa				5551
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gccaaaaaga aaaaaagcta gagacccttt ttgcaaacat ttggtgacca cacatttgag				5731
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tggcaggggt attgcttata acagaggttc tgaagagtag gaagtacata atgaagaggg				5911
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ccaccctggt ctgttctcca actcttttaa atggtgcca actttttctaa gtgagcttag				6151
caatgagcag aaaaaaaaaac atgaattctt tttctggaaa atcagggaga catgggtaat				6211
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<210> 58

<211> 3116

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (522)..(3116)

<400> 58

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[illegible]

tgt ctg cag gaa ggg agt caa cta aag gct tta aga cct gta caa gtg 1061

Cys	Leu	Gln	Glu	Gly	Ser	Gln	Leu	Lys	Ala	Leu	Arg	Pro	Val	Gln	Val		
165					170					175					180		
agg	ggc	cga	ttg	caa	aag	cca	aag	cca	aat	gca	ggg	aaa	gct	gct	gaa	1109	
Arg	Gly	Arg	Leu	Gln	Lys	Pro	Lys	Pro	Asn	Ala	Gly	Lys	Ala	Ala	Glu		
181					186					191					196		
aga	aaa	gaa	att	ctc	ata	tca	cag	gaa	gaa	att	ggg	gcc	aat	gta	gag	1157	
Arg	Lys	Glu	Ile	Leu	Ile	Ser	Gln	Glu	Glu	Ile	Gly	Ala	Asn	Val	Glu		
197					202					207					212		
aag	aat	gaa	aat	gaa	tcc	tgt	gct	gat	aga	gat	act	cct	caa	cac	atg	1205	
Lys	Asn	Glu	Asn	Glu	Ser	Cys	Ala	Asp	Arg	Asp	Thr	Pro	Gln	His	Met		
213					218					223					228		
gaa	gat	caa	tcg	cgt	aaa	gat	ttt	gaa	gag	gaa	gat	gtc	ata	tta	cag	1253	
Glu	Asp	Gln	Ser	Arg	Lys	Asp	Phe	Glu	Glu	Glu	Asp	Val	Ile	Leu	Gln		
229					234					239					244		
cct	gag	aaa	aat	gat	tct	ttt	caa	aat	gtg	cag	cca	gat	gag	ccc	aag	1301	
Pro	Glu	Lys	Asn	Asp	Ser	Phe	Gln	Asn	Val	Gln	Pro	Asp	Glu	Pro	Lys		
245					250					255					260		
gtt	ctt	aat	gaa	tgt	cta	agc	gtt	caa	gag	aat	aat	aag	gca	aat	aaa	1349	
Val	Leu	Asn	Glu	Cys	Leu	Ser	Val	Gln	Glu	Asn	Asn	Lys	Ala	Asn	Lys		
261					266					271					276		
ctt	aac	caa	gtc	cca	att	cta	agg	act	cga	ttt	cag	aaa	cca	aag	cca	1397	
Leu	Asn	Gln	Val	Pro	Ile	Leu	Arg	Thr	Arg	Phe	Gln	Lys	Pro	Lys	Pro		
277					282					287					292		
aat	ata	gga	aga	gga	act	gga	agg	agt	gaa	att	tcc	tca	aag	gaa	gag	1445	
Asn	Ile	Gly	Arg	Gly	Thr	Gly	Arg	Ser	Glu	Ile	Ser	Ser	Lys	Glu	Glu		
293					298					303					308		
gta	cta	gag	aag	att	ctt	gtc	tct	ggg	gaa	atg	gcg	gca	gca	ttg	aga	1493	
Val	Leu	Glu	Lys	Ile	Leu	Val	Ser	Gly	Glu	Met	Ala	Ala	Ala	Leu	Arg		
309					314					319					324		
gaa	act	gta	aga	ctg	gac	acc	tca	cca	aag	gag	atg	gta	cca	gca	gag	1541	
Glu	Thr	Val	Arg	Leu	Asp	Thr	Ser	Pro	Lys	Glu	Met	Val	Pro	Ala	Glu		
325					330					335					340		
att	aat	act	aaa	gaa	atg	cag	tca	gat	tta	aaa	gaa	act	gga	aga	aga	1589	
Ile	Asn	Thr	Lys	Glu	Met	Gln	Ser	Asp	Leu	Lys	Glu	Thr	Gly	Arg	Arg		
341					346					351					356		
gcc	att	tct	ccc	agg	gag	aag	att	cta	gat	gtg	att	gat	gac	acc	ata	1637	
Ala	Ile	Ser	Pro	Arg	Glu	Lys	Ile	Leu	Asp	Val	Ile	Asp	Asp	Thr	Ile		
357					362					367					372		
gaa	atg	gag	aca	ggg	ctg	aaa	gca	atg	gga	aga	gag	att	tgt	cta	agg	1685	
Glu	Met	Glu	Thr	Gly	Leu	Lys	Ala	Met	Gly	Arg	Glu	Ile	Cys	Leu	Arg		
373					378					383					388		
gag	aag	acg	cca	gag	gtg	att	gat	gcc	act	gag	gaa	ata	gac	aaa	gat	1733	
Glu	Lys	Thr	Pro	Glu	Val	Ile	Asp	Ala	Thr	Glu	Glu	Ile	Asp	Lys	Asp		

389	394	399	404	
ttg gaa gaa gct gga aga aga gaa ata tcc cca cag aaa aat ggc cca Leu Glu Glu Ala Gly Arg Arg Glu Ile Ser Pro Gln Lys Asn Gly Pro 405 410 415 420	1781			
gag gag gtt aag cct cta ggt gaa gtg gag aca gat ttg aaa gca act Glu Glu Val Lys Pro Leu Gly Glu Val Glu Thr Asp Leu Lys Ala Thr 421 426 431 436	1829			
gga aat gag agt tcc cca agg gag aag aca cca gag gtg act gat gcc Gly Asn Glu Ser Ser Pro Arg Glu Lys Thr Pro Glu Val Thr Asp Ala 437 442 447 452	1877			
act gag gaa ata gac aaa aat ttg gaa gaa act gga aga aga aaa ata Thr Glu Glu Ile Asp Lys Asn Leu Glu Glu Thr Gly Arg Arg Lys Ile 453 458 463 468	1925			
tcc cca agg gaa aat ggc cca gag gag gtc aag cct gta gat gaa atg Ser Pro Arg Glu Asn Gly Pro Glu Glu Val Lys Pro Val Asp Glu Met 469 474 479 484	1973			
gag aca gat ttg aac gca act gga aga gag agt tct cca agg gag aag Glu Thr Asp Leu Asn Ala Thr Gly Arg Glu Ser Ser Pro Arg Glu Lys 485 490 495 500	2021			
aca cca gag gtg att gat gct act gag gaa ata gat ttg gaa gaa act Thr Pro Glu Val Ile Asp Ala Thr Glu Glu Ile Asp Leu Glu Glu Thr 501 506 511 516	2069			
gaa aga gaa gta tcc cca cag gaa aat gga cta gag gag gtc aag cct Glu Arg Glu Val Ser Pro Gln Glu Asn Gly Leu Glu Glu Val Lys Pro 517 522 527 532	2117			
cta ggt gaa atg gag acg gat ttg aaa gca act gga aga gac agt ttc Leu Gly Glu Met Glu Thr Asp Leu Lys Ala Thr Gly Arg Asp Ser Phe 533 538 543 548	2165			
cca agg ggg aag aca cca gag gtg att gat gcc att gag gaa ata gag Pro Arg Gly Lys Thr Pro Glu Val Ile Asp Ala Ile Glu Glu Ile Glu 549 554 559 564	2213			
ata gat ttg gaa gaa act gaa aga gaa ata tcc cca cag gaa aat ggc Ile Asp Leu Glu Glu Thr Glu Arg Glu Ile Ser Pro Gln Glu Asn Gly 565 570 575 580	2261			
cta gag gag gtt aag cct cta ggt gaa atg caa aca gat ttg aaa gca Leu Glu Glu Val Lys Pro Leu Gly Glu Met Gln Thr Asp Leu Lys Ala 581 586 591 596	2309			
acc gga agg gag att tcc cca agg gag aag aca cca gag gtg att gat Thr Gly Arg Glu Ile Ser Pro Arg Glu Lys Thr Pro Glu Val Ile Asp 597 602 607 612	2357			
gcc act gag gaa ata gac aaa gat ctg gaa gaa act gga aga aga gaa Ala Thr Glu Glu Ile Asp Lys Asp Leu Glu Glu Thr Gly Arg Arg Glu 613 618 623 628	2405			

ata tcc cca gag gaa aat ggc cca gag gag gtc aag cct gta gat gaa	2453
Ile Ser Pro Glu Glu Asn Gly Pro Glu Glu Val Lys Pro Val Asp Glu	
629 634 639 644	
atg gag aca gac ttg aaa aca act gga aga gag ggt tcc tca agg gag	2501
Met Glu Thr Asp Leu Lys Thr Thr Gly Arg Glu Gly Ser Ser Arg Glu	
645 650 655 660	
aag aca cga gag gtg att gat gct gct gag gta ata gag aca gat ttg	2549
Lys Thr Arg Glu Val Ile Asp Ala Ala Glu Val Ile Glu Thr Asp Leu	
661 666 671 676	
gaa gaa act gaa aga gaa ata tcg cca cag gaa aat ggc cca gag gag	2597
Glu Glu Thr Glu Arg Glu Ile Ser Pro Gln Glu Asn Gly Pro Glu Glu	
677 682 687 692	
gtc aag cct gta ggt aaa atg gag aca gat ttg aaa gaa att aga gaa	2645
Val Lys Pro Val Gly Lys Met Glu Thr Asp Leu Lys Glu Ile Arg Glu	
693 698 703 708	
gaa att tcc caa agg gaa aag gtg cta gca gag ttc agt gct ata agg	2693
Glu Ile Ser Gln Arg Glu Lys Val Leu Ala Glu Phe Ser Ala Ile Arg	
709 714 719 724	
gaa aag gag att gat ttg aaa gaa act gga aaa aga gac att ccc atg	2741
Glu Lys Glu Ile Asp Leu Lys Glu Thr Gly Lys Arg Asp Ile Pro Met	
725 730 735 740	
atg gag aaa gta tca gga aag atg gct gtt gtt gaa gaa atg gag gca	2789
Met Glu Lys Val Ser Gly Lys Met Ala Val Val Glu Glu Met Glu Ala	
741 746 751 756	
gat ttg aaa gaa act gga aaa gaa aat ttt aga gag aga gga tct gaa	2837
Asp Leu Lys Glu Thr Gly Lys Glu Asn Phe Arg Glu Arg Gly Ser Glu	
757 762 767 772	
gag atc tgt gtt act gag gaa aag gtg gca gaa ttg aaa caa act gga	2885
Glu Ile Cys Val Thr Glu Glu Lys Val Ala Glu Leu Lys Gln Thr Gly	
773 778 783 788	
aaa aca gac att tct cca agg gaa aac gag cta gag gag acc agt acc	2933
Lys Thr Asp Ile Ser Pro Arg Glu Asn Glu Leu Glu Glu Thr Ser Thr	
789 794 799 804	
tca aga caa act gac aca cat tta atg cag agc ggt agc aat gac ttc	2981
Ser Arg Gln Thr Asp Thr His Leu Met Gln Ser Gly Ser Asn Asp Phe	
805 810 815 820	
agt gct atg cct tca cta gat att cag gta tgt att ttt ctg tcc ttt	3029
Ser Ala Met Pro Ser Leu Asp Ile Gln Val Cys Ile Phe Leu Ser Phe	
821 826 831 836	
aaa agt ttt ttg aat gct ttt tca gag gaa ata aat aat tcc atg att	3077
Lys Ser Phe Leu Asn Ala Phe Ser Glu Glu Ile Asn Asn Ser Met Ile	
837 842 847 852	

att ttg tcc tta agt cca aca aca ttt aaa aat ctc taa 3116
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Met Ser Lys Glu Pro Leu Ile Leu Trp Leu Met Ile Glu Phe Trp Trp	
1 5 10 15	
ctt tac ctg aca cca gtc act tca gag act gtt gtg acg gag gtt ttg	152
Leu Tyr Leu Thr Pro Val Thr Ser Glu Thr Val Val Thr Glu Val Leu	
17 22 27 32	
ggc cac cgg gtg act ttg ccc tgt ctg tac tca tcc tgg tct cac aac	200
Gly His Arg Val Thr Leu Pro Cys Leu Tyr Ser Ser Trp Ser His Asn	
33 38 43 48	
agc aac agc atg tgc tgg ggg aaa gac cag tgc ccc tac tcc ggt tgc	248
Ser Asn Ser Met Cys Trp Gly Lys Asp Gln Cys Pro Tyr Ser Gly Cys	
49 54 59 64	
aag gag gcg ctc atc cgc act gat gga atg agg gtg acc tca aga aag	296
Lys Glu Ala Leu Ile Arg Thr Asp Gly Met Arg Val Thr Ser Arg Lys	
65 70 75 80	
tca gca aaa tat aga ctt cag ggg act atc cgc aga ggt gat gtc tcc	344
Ser Ala Lys Tyr Arg Leu Gln Gly Thr Ile Pro Arg Gly Asp Val Ser	
81 86 91 96	
ttg acc atc tta aac ccc agt gaa agt gac agc ggt gtg tac tgc tgc	392
Leu Thr Ile Leu Asn Pro Ser Glu Ser Asp Ser Gly Val Tyr Cys Cys	
97 102 107 112	
cgc ata gaa gtg cct ggc tgg ttc aac gat gta aag ata aac gtg cgc	440
Arg Ile Glu Val Pro Gly Trp Phe Asn Asp Val Lys Ile Asn Val Arg	
113 118 123 128	
ctg aat cta cag aga gcc tca aca acc acg cac aga aca gca acc acc	488
Leu Asn Leu Gln Arg Ala Ser Thr Thr Thr His Arg Thr Ala Thr Thr	
129 134 139 144	
acc aca cgc aga aca aca aca aca agc ccc acc acc acc cga caa atg	536
Thr Thr Arg Arg Thr Thr Thr Thr Ser Pro Thr Thr Thr Arg Gln Met	

550	555	560	
gat gtt cac ggc tca gtg ctg tcc ctg gcc tcc agt gcc tcc tcc acc			2085
Asp Val His Gly Ser Val Leu Ser Leu Ala Ser Ser Ala Ser Ser Thr			
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Tyr Ser Ser Gln Ile Arg Lys Leu Arg Arg Glu Leu Glu Ser Ser Gln			
580	585	590	
gaa aaa gtg gcc acc ttg acg tct cag ctt tct gcc aat gct aat ctg			2181
Glu Lys Val Ala Thr Leu Thr Ser Gln Leu Ser Ala Asn Ala Asn Leu			
595	600	605	610
gtg gct gct ttt gag cag agc ctg gtg aat atg aca tcc cgc ctg cga			2229
Val Ala Ala Phe Glu Gln Ser Leu Val Asn Met Thr Ser Arg Leu Arg			
615	620	625	
cac ctg gca gag acg gcc gag gag aag gac act gag ctg ctg gat ttg			2277
His Leu Ala Glu Thr Ala Glu Glu Lys Asp Thr Glu Leu Leu Asp Leu			
630	635	640	
cga gaa acc ata gac ttt ctg aag aaa aag aac tct gag gcc cag gca			2325
Arg Glu Thr Ile Asp Phe Leu Lys Lys Lys Asn Ser Glu Ala Gln Ala			
645	650	655	
gtc att cag gga gcc ctt aat gcc tca gaa acc aca ccc aaa ggt agg			2373
Val Ile Gln Gly Ala Leu Asn Ala Ser Glu Thr Thr Pro Lys Gly Arg			
660	665	670	
aca tcc agc cac aga ttg aga ggg aac agg gag cag gaa agt aag agt			2421
Thr Ser Ser His Arg Leu Arg Gly Asn Arg Glu Gln Glu Ser Lys Ser			
675	680	685	690
att aca gat ttt tat ctg ggc cca tag			2448
Ile Thr Asp Phe Tyr Leu Gly Pro			
695			

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gattgaggat gggggcatga cactccagtg tcaaaataag tcttagtaga tttccttggt 1271
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 <213> Homo sapiens

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 gtggcggcag cggttggtcc tgcctctccg ccacctccac cgcggttat cccctggctg 180
 gcggcggttg cggggcgggg gacagtagtt gtagacgcc gccctgcct cagagaagat 240
 accacattga atgaacaaag actgaacttt gtttacagat accttttata aaagatgtct 300
 gtggagtagt gttacagttc aaataacaaa ggattttgca ttatgagatg agtgagagtg 360
 gagaattgga caaaaattga tttttgatct ctgaatttg gtttttagct caccagttat 420
 tgtgtagtct cactatttga aaattcatgc tgaaaaactg agtgaatatg atcagatttc 480
 tccaccaa at tctcagcctg ataaggaaaa tcccgttttg tcaaccta atg aag cat 537
 Met Lys His
 1

tca aag aag aca tat gac tct ttt caa gat gaa ctt gaa gat tat att 585
 Ser Lys Lys Thr Tyr Asp Ser Phe Gln Asp Glu Leu Glu Asp Tyr Ile
 4 9 14 19

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Val	Pro	Leu	Asn	Phe	Asn	Gln	Gln	Glu	Tyr	Ile	Cys	Gly	Ser	His	Gly	
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Val	Glu	His	Arg	Val	Tyr	Lys	His	Phe	Ser	Ser	Asp	Asn	Ser	Thr	Ser	
132					137					142					147	
act	cat	caa	gcc	agt	cac	aaa	cag	ata	cat	cag	aag	agg	aaa	agg	cac	1017
Thr	His	Gln	Ala	Ser	His	Lys	Gln	Ile	His	Gln	Lys	Arg	Lys	Arg	His	
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Gln	Arg	Lys	Lys	Thr	Glu	Val	Glu	Ile	Glu	Thr	Val	His	Val	Ser	Thr	
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 cc atg gag ggc tca cgt ccc cgc gcc ccg agc ggc cac tta gcg ccg 167
 Met Glu Gly Ser Arg Pro Arg Ala Pro Ser Gly His Leu Ala Pro
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 Ser Pro Pro Ala Phe Asp Gly Glu Leu Asp Leu Gln Arg Tyr Ser Asn
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 Gly Pro Ala Val Ser Ala Gly Ser Leu Gly Met Gly Ala Val Ser Trp
 32 37 42 47
 tct gag agt cgt gca ggc gaa cgg cgc ttc ccc tgc cct gta tgc ggg 311
 Ser Glu Ser Arg Ala Gly Glu Arg Arg Phe Pro Cys Pro Val Cys Gly
 48 53 58 63
 aag cgc ttc cgc ttc aac tct atc ctt gct ttg cac ctg cgg gcg cac 359
 Lys Arg Phe Arg Phe Asn Ser Ile Leu Ala Leu His Leu Arg Ala His
 64 69 74 79
 cca gga gcc cag gcc ttc cag tgc cct cac tgc ggc cac cgc gcg gcg 407
 Pro Gly Ala Gln Ala Phe Gln Cys Pro His Cys Gly His Arg Ala Ala
 80 85 90 95
 cag cgg gct ctg ctg cgc tcg cac ctg cgc aca cac cag ccc gag cgc 455
 Gln Arg Ala Leu Leu Arg Ser His Leu Arg Thr His Gln Pro Glu Arg
 96 101 106 111
 cca cgt agt cct gct gca cgc ctg ttg ctg gag ttg gaa gag cgc gcg 503
 Pro Arg Ser Pro Ala Ala Arg Leu Leu Leu Glu Leu Glu Glu Arg Ala
 112 117 122 127

cta cta cgc gag gcc cga ctg ggg aga gcc cga agc tca ggg ggc atg	551
Leu Leu Arg Glu Ala Arg Leu Gly Arg Ala Arg Ser Ser Gly Gly Met	
128 133 138 143	
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Gln Ala Thr Pro Ala Thr Glu Gly Leu Ala Arg Pro Gln Ala Pro Ser	
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Ser Ser Ala Phe Arg Cys Pro Tyr Cys Lys Gly Lys Phe Arg Thr Ser	
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Ala Glu Arg Glu Arg His Leu His Ile Leu His Arg Pro Trp Lys Cys	
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Gly Leu Cys Ser Phe Gly Ser Ser Gln Glu Glu Glu Leu Leu His His	
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Ala Ala Pro Pro Pro Gln Pro Gln Pro Gln Pro Pro Pro Gln Pro Glu	
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Pro Arg Ser Val Pro Gln Pro Glu Pro Glu Pro Glu Pro Glu Arg Glu	
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Ala Thr Pro Thr Pro Ala Pro Ala Ala Pro Glu Glu Pro Pro Ala Pro	
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Pro Glu Phe Arg Cys Gln Val Cys Gly Gln Ser Phe Thr Gln Ser Trp	
272 277 282 287	
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Phe Leu Lys Gly His Met Arg Lys His Lys Ala Ser Phe Asp His Ala	
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Cys Pro Val Cys Gly Arg Cys Phe Lys Glu Pro Trp Phe Leu Lys Asn	
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His Met Lys Val His Ala Ser Lys Leu Gly Pro Leu Arg Ala Pro Gly	
320 325 330 335	
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Pro Ala Ser Gly Pro Ala Arg Ala Pro Gln Pro Pro Asp Leu Gly Leu	
336 341 346 351	
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Leu Ala Tyr Glu Pro Leu Gly Pro Ala Leu Leu Leu Ala Pro Ala Pro	
352 357 362 367	
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Thr Pro Ala Glu Arg Arg Glu Pro Pro Ser Leu Leu Gly Tyr Leu Ser	
368 373 378 383	
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Leu Arg Ala Gly Glu Gly Arg Pro Asn Gly Glu Gly Ala Glu Pro Gly	
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Pro Gly Arg Ser Phe Gly Gly Phe Arg Pro Leu Ser Ser Ala Leu Pro	
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Val Val Glu Ala Gln Glu Glu Thr Trp Ala Arg Gly Arg Ser Leu Gly	
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Ser Leu Ala Ser Leu His Pro Arg Pro Gly Glu Gly Pro Gly His Ser	
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Asn Gly Leu Leu Val Gly Gly Thr Arg Pro Glu Gly Gly Arg Gly Ala	
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Thr Gly Lys Asp Cys Pro Phe Cys Gly Lys Ser Phe Arg Ser Ala His	
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His Leu Lys Val His Leu Arg Val His Thr Gly Glu Arg Pro Tyr Lys	
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Cys Pro His Cys Asp Tyr Ala Gly Thr Gln Ser Gly Ser Leu Lys Tyr	
528 533 538 543	
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His Leu Gln Arg His His Arg Glu Gln Arg Ser Gly Ala Gly Pro Gly	
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Pro Pro Pro Glu Pro Pro Pro Pro Ser Gln Arg Gly Ser Ala Pro Gln	
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608	613	618	623	
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Ala Glu Pro Leu Asp	Leu Ser Leu Arg Ala	Gly Pro Gly Gly Glu	Ala	
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Gly Pro Gly Gly Ala	Leu His Arg Cys Leu	Phe Cys Pro Phe Ala	Thr	
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Gly Ala Pro Glu Leu	Met Ala Leu His Leu	Gln Val His His Ser	Arg	
656	661	666	671	
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Arg Ala Arg Gly Arg	Arg Pro Pro Gln Ala	Asp Ala Ser Pro Pro	Tyr	
672	677	682	687	
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Ala Arg Val Pro Ser	Gly Glu Thr Pro Pro	Ser Pro Ser Gln Glu	Gly	
688	693	698	703	
gag gag ggc tcc ggg	ctg tcc aga ccc gga	gag gca ggg ctg ggg	ggg	2279
Glu Glu Gly Ser Gly	Leu Ser Arg Pro Gly	Glu Ala Gly Leu Gly	Gly	
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Gln Glu Arg *				
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169 174 179 184				

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157					162					167					172	
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Val	Phe	Tyr	Lys	Gly	Leu	Ala	Pro	Thr	Leu	Ile	Ala	Ile	Phe	Pro	Tyr	
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Ala	Lys	Gln	Val	Leu	Gln	Lys	Glu	Gly	Ala	Leu	Gly	Phe	Phe	Lys	Gly	
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Leu	Ser	Pro	Ser	Leu	Leu	Lys	Ala	Ala	Leu	Ser	Thr	Gly	Phe	Met	Phe	
285					290					295					300	
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Phe	Ser	Tyr	Glu	Phe	Phe	Cys	Asn	Val	Phe	His	Cys	Met	Asn	Arg	Thr	
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Ala	Ser	Gln	Arg	*												

317

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 19 24 29 34

ggg tcc ctg aag aag ggc aag acc cca cct gtg gct gta act tcc ccc 501
 Gly Ser Leu Lys Lys Gly Lys Thr Pro Pro Val Ala Val Thr Ser Pro
 35 40 45 50

atc act cac aca gcc cag agt gcc ctc aaa gtc gca ggc aaa cct gag	549
Ile Thr His Thr Ala Gln Ser Ala Leu Lys Val Ala Gly Lys Pro Glu	
51 56 61 66	
ggc aaa gct aca gac aag ggt aag ctt gca gtg aag aat act ggg ctc	597
Gly Lys Ala Thr Asp Lys Gly Lys Leu Ala Val Lys Asn Thr Gly Leu	
67 72 77 82	
caa cgc tcc tcc tct gat gct ggt cgg gac cgc ctg agt gat gct aag	645
Gln Arg Ser Ser Ser Asp Ala Gly Arg Asp Arg Leu Ser Asp Ala Lys	
83 88 93 98	
aag ccc ccc tcg ggc att gct cgc ccc tcc act tcg gga tcc ttt ggc	693
Lys Pro Pro Ser Gly Ile Ala Arg Pro Ser Thr Ser Gly Ser Phe Gly	
99 104 109 114	
tac aag aag cct cct cct gcc aca ggc aca gcc act gtc atg caa act	741
Tyr Lys Lys Pro Pro Pro Ala Thr Gly Thr Ala Thr Val Met Gln Thr	
115 120 125 130	
ggg ggt tca gcc act ctc agc aag atc cag aag tcc tca ggc atc cct	789
Gly Gly Ser Ala Thr Leu Ser Lys Ile Gln Lys Ser Ser Gly Ile Pro	
131 136 141 146	
gtc aag cca gta aat ggg cgc aag act agc tta gat gtt tcc aac agt	837
Val Lys Pro Val Asn Gly Arg Lys Thr Ser Leu Asp Val Ser Asn Ser	
147 152 157 162	
gca gag cca gga ttc ctg gct cct gga gcc cgt tct aac atc cag tac	885
Ala Glu Pro Gly Phe Leu Ala Pro Gly Ala Arg Ser Asn Ile Gln Tyr	
163 168 173 178	
cgc agc ctg ccc cgg cca gcc aag tca agt tct atg agc gtg acc ggc	933
Arg Ser Leu Pro Arg Pro Ala Lys Ser Ser Ser Met Ser Val Thr Gly	
179 184 189 194	
ggg cgg ggt gga cct cgc cct gtg agc agc agc att gac ccc agt ctc	981
Gly Arg Gly Gly Pro Arg Pro Val Ser Ser Ser Ile Asp Pro Ser Leu	
195 200 205 210	
ctc agc acc aag cag gga ggc ctt acg cct tcc aga ctg aag gag cct	1029
Leu Ser Thr Lys Gln Gly Gly Leu Thr Pro Ser Arg Leu Lys Glu Pro	
211 216 221 226	
acc aag gta gcc agt ggg cgg acc act cca gcc cct gtc aat cag aca	1077
Thr Lys Val Ala Ser Gly Arg Thr Thr Pro Ala Pro Val Asn Gln Thr	
227 232 237 242	
gat cgg gaa aag gag aag gcc aaa gcc aag gca gtg gcc ttg gac tca	1125
Asp Arg Glu Lys Glu Lys Ala Lys Ala Lys Ala Val Ala Leu Asp Ser	
243 248 253 258	
gac aac atc tcc ttg aag agt att ggc tcc cca gaa agt act ccc aag	1173
Asp Asn Ile Ser Leu Lys Ser Ile Gly Ser Pro Glu Ser Thr Pro Lys	
259 264 269 274	
aac caa gca agc cac ccc aca gcc acc aag ctg gca gag ctg cca cca	1221

Asn Gln Ala Ser His Pro Thr Ala Thr Lys Leu Ala Glu Leu Pro Pro	
275 280 285 290	
acc cct ctc agg gcc aca gcg aag agc ttt gtc aaa cca ccc tca cta	1269
Thr Pro Leu Arg Ala Thr Ala Lys Ser Phe Val Lys Pro Pro Ser Leu	
291 296 301 306	
gcc aat ctt gac aag gtc aac tcc aac agt ctg gat cta cca tca tcc	1317
Ala Asn Leu Asp Lys Val Asn Ser Asn Ser Leu Asp Leu Pro Ser Ser	
307 312 317 322	
agt gat acc acc cat gct tca aag gtc cca gat ctg cat gct aca agc	1365
Ser Asp Thr Thr His Ala Ser Lys Val Pro Asp Leu His Ala Thr Ser	
323 328 333 338	
tca gca tct ggg ggc cct ctc cct tcc tgc ttc acc ccc agt ccg gca	1413
Ser Ala Ser Gly Gly Pro Leu Pro Ser Cys Phe Thr Pro Ser Pro Ala	
339 344 349 354	
ccc atc ctc aat att aac tca gcc agc ttc tcc cag ggc ctg gag cta	1461
Pro Ile Leu Asn Ile Asn Ser Ala Ser Phe Ser Gln Gly Leu Glu Leu	
355 360 365 370	
atg agt ggt ttc agt gtg cca aaa gag acc cgc atg tac ccc aaa ctc	1509
Met Ser Gly Phe Ser Val Pro Lys Glu Thr Arg Met Tyr Pro Lys Leu	
371 376 381 386	
tca ggc ctg cac agg agc atg gag tcc ctc cag atg cca atg agc ctc	1557
Ser Gly Leu His Arg Ser Met Glu Ser Leu Gln Met Pro Met Ser Leu	
387 392 397 402	
ccc agt gcc ttc ccc agc agt act ccc gtc ccc acc cca cct gct ccc	1605
Pro Ser Ala Phe Pro Ser Ser Thr Pro Val Pro Thr Pro Pro Ala Pro	
403 408 413 418	
cct gct gct ccc aca gaa gaa gag acg gaa gag ctg act tgg agt gga	1653
Pro Ala Ala Pro Thr Glu Glu Glu Thr Glu Glu Leu Thr Trp Ser Gly	
419 424 429 434	
agc ccc aga gct ggg caa ctg gac agt aat cag cgg gat cgg aac act	1701
Ser Pro Arg Ala Gly Gln Leu Asp Ser Asn Gln Arg Asp Arg Asn Thr	
435 440 445 450	
ctt ccc aag aaa ggg ctc agg tac cag ctt cag tcc cag gag gag acc	1749
Leu Pro Lys Lys Gly Leu Arg Tyr Gln Leu Gln Ser Gln Glu Glu Thr	
451 456 461 466	
aag gag agg cga cat tcc cat acc att ggt ggg ctg cct gaa tcc gat	1797
Lys Glu Arg Arg His Ser His Thr Ile Gly Gly Leu Pro Glu Ser Asp	
467 472 477 482	
gac cag tca gag ctg cct tct ccc cct gca ctt ccc atg tct ctg agt	1845
Asp Gln Ser Glu Leu Pro Ser Pro Pro Ala Leu Pro Met Ser Leu Ser	
483 488 493 498	
gca aag ggc caa ctt acc aac ata gtg agt ccc act gcg gcc acc acg	1893
Ala Lys Gly Gln Leu Thr Asn Ile Val Ser Pro Thr Ala Ala Thr Thr	

499	504	509	514	
cca aga atc acc cgc tcc aac agc atc ccc acc cac gag gcg gcc ttc				1941
Pro Arg Ile Thr Arg Ser Asn Ser Ile Pro Thr His Glu Ala Ala Phe				
515	520	525	530	
gag ctg tac agc ggc tcc caa atg ggg agc acc ctg tcc ctg gcc gag				1989
Glu Leu Tyr Ser Gly Ser Gln Met Gly Ser Thr Leu Ser Leu Ala Glu				
531	536	541	546	
aga ccc aag gga atg att cgg tca gga tcc ttc cga gac ccc acg gac				2037
Arg Pro Lys Gly Met Ile Arg Ser Gly Ser Phe Arg Asp Pro Thr Asp				
547	552	557	562	
gat gtt cac ggc tca gtg ctg tcc ctg gcc tcc agt gcc tcc tcc acc				2085
Asp Val His Gly Ser Val Leu Ser Leu Ala Ser Ser Ala Ser Ser Thr				
563	568	573	578	
tac tcc tca caa atc cgg aag ctt cgt agg gaa ctg gaa tca tcc cag				2133
Tyr Ser Ser Gln Ile Arg Lys Leu Arg Arg Glu Leu Glu Ser Ser Gln				
579	584	589	594	
gaa aaa gtg gcc acc ttg acg tct cag ctt tct gcc aat gct aat ctg				2181
Glu Lys Val Ala Thr Leu Thr Ser Gln Leu Ser Ala Asn Ala Asn Leu				
595	600	605	610	
gtg gct gct ttt gag cag agc ctg gtg aat atg aca tcc cgc ctg cga				2229
Val Ala Ala Phe Glu Gln Ser Leu Val Asn Met Thr Ser Arg Leu Arg				
611	616	621	626	
cac ctg gca gag acg gcc gag gag aag gac act gag ctg ctg gat ttg				2277
His Leu Ala Glu Thr Ala Glu Glu Lys Asp Thr Glu Leu Leu Asp Leu				
627	632	637	642	
cga gaa acc ata gac ttt ctg aag aaa aag aac tct gag gcc cag gca				2325
Arg Glu Thr Ile Asp Phe Leu Lys Lys Lys Asn Ser Glu Ala Gln Ala				
643	648	653	658	
gtc att cag gga gcc ctt aat gcc tca gaa acc aca ccc aaa ggt agg				2373
Val Ile Gln Gly Ala Leu Asn Ala Ser Glu Thr Thr Pro Lys Gly Arg				
659	664	669	674	
aca tcc agc cac aga ttg aga ggg aac agg gag cag gaa agt aag agt				2421
Thr Ser Ser His Arg Leu Arg Gly Asn Arg Glu Gln Glu Ser Lys Ser				
675	680	685	690	
att aca gat ttt tat ctg ggc cca tag				2448
Ile Thr Asp Phe Tyr Leu Gly Pro *				
691	696			

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 <211> 2155
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cgaaaactgt attgatcaag tg atg aaa cta cag aat ctg ttt gta gat gat 172
Met Lys Leu Gln Asn Leu Phe Val Asp Asp

1 5

tca ggt cga tat ttg gct att caa ttc cat ctg gaa tgt gca tat gtg 220
Ser Gly Arg Tyr Leu Ala Ile Gln Phe His Leu Glu Cys Ala Tyr Val
11 16 21 26

ttt tta tat tat tat gag tac aga aaa gca aaa gat cag ttg gat att 268
Phe Leu Tyr Tyr Tyr Glu Tyr Arg Lys Ala Lys Asp Gln Leu Asp Ile
27 32 37 42

gct aag gac atc agc caa tta caa att gat ttg aca ggt gct ttg gga 316
Ala Lys Asp Ile Ser Gln Leu Gln Ile Asp Leu Thr Gly Ala Leu Gly
43 48 53 58

aaa aga aca cgg ttc cag gaa aat tat gtg gca caa ctg att cta gat 364
Lys Arg Thr Arg Phe Gln Glu Asn Tyr Val Ala Gln Leu Ile Leu Asp
59 64 69 74

gta aga agg gaa ggg gat gtc ctt tca aat tgt gaa ttc act cca gca 412
Val Arg Arg Glu Gly Asp Val Leu Ser Asn Cys Glu Phe Thr Pro Ala
75 80 85 90

ccc act cct cag gaa cat tta acc aag aat ctt gag ctc aat gat gac 460
Pro Thr Pro Gln Glu His Leu Thr Lys Asn Leu Glu Leu Asn Asp Asp
91 96 101 106

acc att ctg aat gac ata aag tta gca gat tgt gaa cag ttc cag atg 508
Thr Ile Leu Asn Asp Ile Lys Leu Ala Asp Cys Glu Gln Phe Gln Met
107 112 117 122

ccg gat ctg tgt gct gaa gag atc gct att att ctt gga atc tgc act 556
Pro Asp Leu Cys Ala Glu Glu Ile Ala Ile Ile Leu Gly Ile Cys Thr
123 128 133 138

aat ttt caa aag aat aac cca gtg cac aca tta act gaa gtg gag ctt 604
Asn Phe Gln Lys Asn Asn Pro Val His Thr Leu Thr Glu Val Glu Leu
139 144 149 154

ctg gca ttt aca tca tgt ttg ctt tca caa cca aag ttc tgg gcc att 652

Leu Ala Phe Thr Ser Cys Leu Leu Ser Gln Pro Lys Phe Trp Ala Ile	
155 160 165 170	
cag aca tca gcc ttg atc ctc cgg aca aaa ctt gag aaa gga agt act	700
Gln Thr Ser Ala Leu Ile Leu Arg Thr Lys Leu Glu Lys Gly Ser Thr	
171 176 181 186	
cgc cga gtg gaa cgg gca atg agg cag aca cag gct ctt gca gac caa	748
Arg Arg Val Glu Arg Ala Met Arg Gln Thr Gln Ala Leu Ala Asp Gln	
187 192 197 202	
ttt gaa gat aaa act aca tct gta ttg gaa cgc ctg aag att ttc tat	796
Phe Glu Asp Lys Thr Thr Ser Val Leu Glu Arg Leu Lys Ile Phe Tyr	
203 208 213 218	
tgc tgt caa gta cca cct cac tgg gcc att cag cgc caa ctt gca agt	844
Cys Cys Gln Val Pro Pro His Trp Ala Ile Gln Arg Gln Leu Ala Ser	
219 224 229 234	
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Leu Leu Phe Glu Leu Gly Cys Thr Ser Ser Ala Leu Gln Ile Phe Glu	
235 240 245 250	
aag cta gaa atg tgg gaa gat gtt gtc att tgt tat gaa aga gcc ggg	940
Lys Leu Glu Met Trp Glu Asp Val Val Ile Cys Tyr Glu Arg Ala Gly	
251 256 261 266	
cag cac gga aag gca gaa gaa atc ctt aga caa gag ctg gag aaa aaa	988
Gln His Gly Lys Ala Glu Glu Ile Leu Arg Gln Glu Leu Glu Lys Lys	
267 272 277 282	
gaa acg cct agt tta tac tgc ttg ctt gga gat gtc ctc gga gac cat	1036
Glu Thr Pro Ser Leu Tyr Cys Leu Leu Gly Asp Val Leu Gly Asp His	
283 288 293 298	
tct tgc tat gac aag gcc tgg gag ttg tcc cgg tac cgc agt gct cgt	1084
Ser Cys Tyr Asp Lys Ala Trp Glu Leu Ser Arg Tyr Arg Ser Ala Arg	
299 304 309 314	
gct cag cgc tcc aaa gcc ctc ctt cat ctt cgg aat aag gag ttt caa	1132
Ala Gln Arg Ser Lys Ala Leu Leu His Leu Arg Asn Lys Glu Phe Gln	
315 320 325 330	
gag tgt gta gag tgc ttc gaa cgc tcg gtt aag att aat ccc atg cag	1180
Glu Cys Val Glu Cys Phe Glu Arg Ser Val Lys Ile Asn Pro Met Gln	
331 336 341 346	
ctc ggg gtg tgg ttt tct ctc ggt tgt gcc tat ttg gcc ttg gaa gac	1228
Leu Gly Val Trp Phe Ser Leu Gly Cys Ala Tyr Leu Ala Leu Glu Asp	
347 352 357 362	
tat caa ggt tca gca aag gca ttt cag cgc tgt gtg act cta gaa ccc	1276
Tyr Gln Gly Ser Ala Lys Ala Phe Gln Arg Cys Val Thr Leu Glu Pro	
363 368 373 378	
gat aat gct gaa gct tgg aac aat ttg tca act tcc tat atc cga tta	1324
Asp Asn Ala Glu Ala Trp Asn Asn Leu Ser Thr Ser Tyr Ile Arg Leu	

379	384	389	394	
aaa caa aaa gta aaa gct ttt aga act tta caa gaa gct ctc aag tgt				1372
Lys Gln Lys Val Lys Ala Phe Arg Thr Leu Gln Glu Ala Leu Lys Cys				
395	400	405	410	
aac tat gaa cac tgg cag att tgg gaa aac tac atc ctc acc agc act				1420
Asn Tyr Glu His Trp Gln Ile Trp Glu Asn Tyr Ile Leu Thr Ser Thr				
411	416	421	426	
gac gtt ggg gaa ttt tca gaa gcc att aaa gct tat cac cgg ctc ttg				1468
Asp Val Gly Glu Phe Ser Glu Ala Ile Lys Ala Tyr His Arg Leu Leu				
427	432	437	442	
gac tta cgt gac aaa tac aaa gat gtt cag gtc ctt aaa att cta gtc				1516
Asp Leu Arg Asp Lys Tyr Lys Asp Val Gln Val Leu Lys Ile Leu Val				
443	448	453	458	
agg gca gtg att gat ggg atg act gat cga agt gga gat gtt gca act				1564
Arg Ala Val Ile Asp Gly Met Thr Asp Arg Ser Gly Asp Val Ala Thr				
459	464	469	474	
ggc ctc aaa gga aag ctg cag gag tta ttt ggc aga gtg act tca aga				1612
Gly Leu Lys Gly Lys Leu Gln Glu Leu Phe Gly Arg Val Thr Ser Arg				
475	480	485	490	
gtg aca aat gat gga gaa atc tgg agg ctg tat gcc cac gta tat gga				1660
Val Thr Asn Asp Gly Glu Ile Trp Arg Leu Tyr Ala His Val Tyr Gly				
491	496	501	506	
aat ggg cag agt gaa aag cct gat gaa aat gaa aag gca ttc cag tgc				1708
Asn Gly Gln Ser Glu Lys Pro Asp Glu Asn Glu Lys Ala Phe Gln Cys				
507	512	517	522	
ctc tca aag gca tac aag tgt gac acc cag tcc aat tgt tgg gag aaa				1756
Leu Ser Lys Ala Tyr Lys Cys Asp Thr Gln Ser Asn Cys Trp Glu Lys				
523	528	533	538	
gat att aca tca ttt aag gaa gtt gtt caa aga gcc tta gga ctt gca				1804
Asp Ile Thr Ser Phe Lys Glu Val Val Gln Arg Ala Leu Gly Leu Ala				
539	544	549	554	
cat gtg gcc ata aaa tgc agt aaa aac aaa tcc agt tcc caa gaa gct				1852
His Val Ala Ile Lys Cys Ser Lys Asn Lys Ser Ser Ser Gln Glu Ala				
555	560	565	570	
gta caa atg ctt tct tct gtt cga ctc aat tta cgg ggc ttg tta tct				1900
Val Gln Met Leu Ser Ser Val Arg Leu Asn Leu Arg Gly Leu Leu Ser				
571	576	581	586	
aaa gca aag caa ctt ttt aca gat gtg gca act gga gaa atg tcc agg				1948
Lys Ala Lys Gln Leu Phe Thr Asp Val Ala Thr Gly Glu Met Ser Arg				
587	592	597	602	
gaa tta gct gat gac ata aca gct atg gac acc tta gtg aca gag ctc				1996
Glu Leu Ala Asp Asp Ile Thr Ala Met Asp Thr Leu Val Thr Glu Leu				
603	608	613	618	

caa gac cta agc aac cag ttt cga aat cag tat tga ttct gctggaagca 2046
 Gln Asp Leu Ser Asn Gln Phe Arg Asn Gln Tyr *
 619 624 629

gattctggaa aaggtgcttt cacctgctgg taaaagatac atctgtatat ctgaaatgca 2106

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 Tyr Arg Ala Leu Tyr Ala Phe Arg Ser Ala Glu Pro Asn Ala Leu Ala
 2 7 12 17

ttc gcc gcg ggc gag acc ttc ctg gtg cta gag cga agc agc gcg cac 154
 Phe Ala Ala Gly Glu Thr Phe Leu Val Leu Glu Arg Ser Ser Ala His
 18 23 28 33

tgg tgg ctg gcc gcg cgg gcg cgc agt ggt gag acg ggc tac gtg ccg 202
 Trp Trp Leu Ala Ala Arg Ala Arg Ser Gly Glu Thr Gly Tyr Val Pro
 34 39 44 49

cca gcc tac ctg cgc cgc ctg cag ggc ctg gag cag gat gtc ctc cag 250
 Pro Ala Tyr Leu Arg Arg Leu Gln Gly Leu Glu Gln Asp Val Leu Gln
 50 55 60 65

gcc att gac cgg gcc atc gag gct gta cac aac aca gcc atg cgg gat 298
 Ala Ile Asp Arg Ala Ile Glu Ala Val His Asn Thr Ala Met Arg Asp
 66 71 76 81

ggt ggc aag tac agc ctg gaa cag cgt gga gtc ctc cag aag ctg atc 346
 Gly Gly Lys Tyr Ser Leu Glu Gln Arg Gly Val Leu Gln Lys Leu Ile
 82 87 92 97

cac cac cgg aaa gag acc ctg tca cgc aga ggc cct tca gcc tcc agt 394
 His His Arg Lys Glu Thr Leu Ser Arg Arg Gly Pro Ser Ala Ser Ser

98						103						108						113	
gtt gca gtt atg acc tca tca acc agt gac cac cac ttg gat gct gct	442																		
Val Ala Val Met Thr Ser Ser Thr Ser Asp His His Leu Asp Ala Ala																			
114 119 124 129																			
gca gcc agg cag ccc aat ggg gtg tgt cga gct ggg ttc gag cgg cag	490																		
Ala Ala Arg Gln Pro Asn Gly Val Cys Arg Ala Gly Phe Glu Arg Gln																			
130 135 140 145																			
cac agc cta ccc agt tct gag cat ctt ggg gca gat gga ggc ctc tac	538																		
His Ser Leu Pro Ser Ser Ser Glu His Leu Gly Ala Asp Gly Gly Leu Tyr																			
146 151 156 161																			
cag atc cca ctt cca tct tcc cag atc cca cca cag cct cgc cga gca	586																		
Gln Ile Pro Leu Pro Ser Ser Gln Ile Pro Pro Gln Pro Arg Arg Ala																			
162 167 172 177																			
gca ccc acc aca ccg ccc cca cca gtg aag cgc cga gac cgc gag gcc	634																		
Ala Pro Thr Thr Pro Pro Pro Pro Val Lys Arg Arg Asp Arg Glu Ala																			
178 183 188 193																			
ctg atg gcc tct ggg agt ggt ggc cac aac acc atg ccc tcc ggg ggt	682																		
Leu Met Ala Ser Gly Ser Gly Gly His Asn Thr Met Pro Ser Gly Gly																			
194 199 204 209																			
aac tct gtg tcc agc ggc tcc tca gtc agc agc acc tcc ctg gac acg	730																		
Asn Ser Val Ser Ser Gly Ser Ser Val Ser Ser Thr Ser Leu Asp Thr																			
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Leu Tyr Thr Ser Ser Ser Pro Ser Glu Pro Gly Ser Ser Cys Ser Pro																			
226 231 236 241																			
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Thr Pro Pro Pro Val Pro Arg Arg Gly Thr His Thr Thr Val Ser Gln																			
242 247 252 257																			
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Val Gln Pro Pro Pro Ser Lys Ala Ser Ala Pro Glu Pro Pro Ala Glu																			
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Glu Glu Val Ala Thr Gly Thr Thr Ser Ala Ser Asp Asp Leu Glu Ala																			
274 279 284 289																			
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290 295 300 305																			
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Ala Ala Val Pro Arg Thr Ile Gly Ala Glu Leu Met Glu Leu Val Arg																			
306 311 316 321																			
aga aac act ggc ctg agc cac gaa tta tgc cgg gtg gcc atc ggc atc	1066																		
Arg Asn Thr Gly Leu Ser His Glu Leu Cys Arg Val Ala Ile Gly Ile																			
322 327 332 337																			

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Ile	Val	Gly	His	Ile	Gln	Ala	Ser	Val	Pro	Ala	Ser	Ser	Pro	Val	Met	
338					343					348					353	
gag	cag	gtc	ctc	ctc	tca	ctc	gta	gag	ggc	aag	gac	ctc	agc	atg	gcc	1162
Glu	Gln	Val	Leu	Leu	Ser	Leu	Val	Glu	Gly	Lys	Asp	Leu	Ser	Met	Ala	
354					359					364					369	
ctg	ccc	tca	ggg	cag	gtc	tgc	cac	gac	cag	cag	agg	ctg	gag	gtg	atc	1210
Leu	Pro	Ser	Gly	Gln	Val	Cys	His	Asp	Gln	Gln	Arg	Leu	Glu	Val	Ile	
370					375					380					385	
ttt	gca	gac	ctg	gct	cgc	cgg	aag	gac	gac	gcc	cag	cag	cgc	agt	tgg	1258
Phe	Ala	Asp	Leu	Ala	Arg	Arg	Lys	Asp	Asp	Ala	Gln	Gln	Arg	Ser	Trp	
386					391					396					401	
gca	cta	tat	gag	gat	gag	ggt	gtc	atc	cgc	tgc	tac	cta	gag	gag	ctg	1306
Ala	Leu	Tyr	Glu	Asp	Glu	Gly	Val	Ile	Arg	Cys	Tyr	Leu	Glu	Glu	Leu	
402					407					412					417	
ctg	cat	att	ctg	act	gat	gca	gac	cct	gaa	gtt	tgc	aag	aaa	atg	tgc	1354
Leu	His	Ile	Leu	Thr	Asp	Ala	Asp	Pro	Glu	Val	Cys	Lys	Lys	Met	Cys	
418					423					428					433	
aag	aga	aac	gag	ttc	gag	tct	gtc	ctg	gcc	ttg	gtg	gcc	tat	tac	caa	1402
Lys	Arg	Asn	Glu	Phe	Glu	Ser	Val	Leu	Ala	Leu	Val	Ala	Tyr	Tyr	Gln	
434					439					444					449	
atg	gaa	cac	cga	gca	tca	ctg	cgg	ctg	ctg	ctc	ctc	aag	tgc	ttt	ggc	1450
Met	Glu	His	Arg	Ala	Ser	Leu	Arg	Leu	Leu	Leu	Leu	Lys	Cys	Phe	Gly	
450					455					460					465	
gcc	atg	tgc	agc	ctg	gat	gca	gcc	atc	atc	tcc	acg	ctt	gtg	tca	tcc	1498
Ala	Met	Cys	Ser	Leu	Asp	Ala	Ala	Ile	Ile	Ser	Thr	Leu	Val	Ser	Ser	
466					471					476					481	
gtg	ctg	cct	gta	gag	ctg	gcg	agg	gac	atg	cag	aca	gac	acg	cag	gac	1546
Val	Leu	Pro	Val	Glu	Leu	Ala	Arg	Asp	Met	Gln	Thr	Asp	Thr	Gln	Asp	
482					487					492					497	
cac	cag	aaa	ctc	tgt	tac	tct	gcc	ctc	atc	ctg	gcc	atg	gtc	ttc	tcc	1594
His	Gln	Lys	Leu	Cys	Tyr	Ser	Ala	Leu	Ile	Leu	Ala	Met	Val	Phe	Ser	
498					503					508					513	
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Phe	Ala	Gln	Phe	Leu	Leu	Asn	Ile	Val	Glu	Asp	Gly	Leu	Pro	Leu	Asp	
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acc	aca	gag	cag	ctg	ccg	gac	ctc	tgc	gtg	aac	ctg	ctt	ctg	gct	ctc	1738
Thr	Thr	Glu	Gln	Leu	Pro	Asp	Leu	Cys	Val	Asn	Leu	Leu	Leu	Ala	Leu	
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Asn Leu His Leu Pro Ala Ala Asp Gln Asn Val Ile Met Ala Ala Leu	
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agc aaa cac gcc aat gtc aag atc ttc tcc gag aag ctg ttg ttg ctc	1834
Ser Lys His Ala Asn Val Lys Ile Phe Ser Glu Lys Leu Leu Leu Leu	
578 583 588 593	
ctg aac aga ggg gat gac cct gtg cgc atc ttc aaa cat gag cca cag	1882
Leu Asn Arg Gly Asp Asp Pro Val Arg Ile Phe Lys His Glu Pro Gln	
594 599 604 609	
cca cca cac tct gtc ctc aag ttc ctg cag gac gtg ttt ggc agc ccg	1930
Pro Pro His Ser Val Leu Lys Phe Leu Gln Asp Val Phe Gly Ser Pro	
610 615 620 625	
gcc aca gct gcc atc ttc tac cac aca gac atg atg gct ctc att gac	1978
Ala Thr Ala Ala Ile Phe Tyr His Thr Asp Met Met Ala Leu Ile Asp	
626 631 636 641	
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Ile Thr Val Arg His Ile Ala Asp Leu Ser Pro Gly Asp Lys Leu Arg	
642 647 652 657	
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Met Glu Tyr Leu Ser Leu Met His Ala Ile Val Arg Thr Thr Pro Tyr	
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Leu Gln His Arg His Arg Leu Pro Asp Leu Gln Ala Ile Leu Arg Arg	
674 679 684 689	
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Ile Leu Asn Glu Glu Glu Thr Ser Pro Gln Cys Gln Met Asp Arg Met	
690 695 700 705	
att gtc cga gag atg tgc aag gaa ttc ctg gtg ctg ggg gag gct ccc	2218
Ile Val Arg Glu Met Cys Lys Glu Phe Leu Val Leu Gly Glu Ala Pro	
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Ser *	
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ctccagggcc tgatcctggg tgcag  atg cag ctg gaa gcc ctg aac ctg ctg      412
                               Met Gln Leu Glu Ala Leu Asn Leu Leu
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cac aca cta gtc tgg gca cgg agt ctc tgc cgt gcc gga gct gtg cag      460
His Thr Leu Val Trp Ala Arg Ser Leu Cys Arg Ala Gly Ala Val Gln
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aca cag gag cgg ctg tca ggc agt gcc agc cct gag caa gtg cca gct      508
Thr Gln Glu Arg Leu Ser Gly Ser Ala Ser Pro Glu Gln Val Pro Ala
 26                               31                               36                               41

ggt gag tgc tgt gct ctg cag gag tat gag gcc gcc gtg gag cag ctc      556
Gly Glu Cys Cys Ala Leu Gln Glu Tyr Glu Ala Ala Val Glu Gln Leu
 42                               47                               52                               57

aag agc gag cag atc cgg gcg cag gct gag gag agg agg aag acc ctg      604
Lys Ser Glu Gln Ile Arg Ala Gln Ala Glu Glu Arg Arg Lys Thr Leu
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agc gag gag acc cgg cag cac cag gcc agg gcc cag tat caa gac aag      652
Ser Glu Glu Thr Arg Gln His Gln Ala Arg Ala Gln Tyr Gln Asp Lys
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ctg gcc cgg cag cgc tac gag gac caa ctg aag cag cag caa ctt ctc      700
Leu Ala Arg Gln Arg Tyr Glu Asp Gln Leu Lys Gln Gln Gln Leu Leu
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aat gag gag aat tta cgg aag cag gag gag tcc gtg cag aag cag gaa      748
Asn Glu Glu Asn Leu Arg Lys Gln Glu Glu Ser Val Gln Lys Gln Glu
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gcc atg cgg cga gcc acc gtg gag cgg gag atg gag ctg cgg cac aag      796
Ala Met Arg Arg Ala Thr Val Glu Arg Glu Met Glu Leu Arg His Lys
122                               127                               132                               137

aat gag atg ctg cga gtg gag acc gag gcc cgg gcg cgc gcc aag gcc      844

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Met Gly Gln His Ser Asn Lys Phe Met Leu Val Leu Ala Ser Asn Leu	
394 399 404 409	
cct gag cag ttc gac tgt gcc atc aac agc cgc att gac gtg atg gtc	1660
Pro Glu Gln Phe Asp Cys Ala Ile Asn Ser Arg Ile Asp Val Met Val	
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His Phe Asp Leu Pro Gln Gln Glu Glu Arg Glu Arg Leu Val Arg Leu	
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His Phe Asp Asn Cys Val Leu Lys Pro Ala Thr Glu Gly Lys Arg Arg	
442 447 452 457	
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Leu Lys Leu Ala Gln Phe Asp Tyr Gly Arg Lys Cys Ser Glu Val Ala	
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Arg Leu Thr Glu Gly Met Ser Gly Arg Glu Ile Ala Gln Leu Ala Val	
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Ser Trp Gln Ala Thr Ala Tyr Ala Ser Lys Asp Gly Val Leu Thr Glu	
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Lys Met Arg Trp Leu Lys Ala Glu Gly Pro Gly Arg Arg Val Glu His	
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ccc cta tcc gga gtc caa ggc gag acc ctc acc tca tgg agc ctg gcc	2044
Pro Leu Ser Gly Val Gln Gly Glu Thr Leu Thr Ser Trp Ser Leu Ala	
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acg gac ccc tcc tac ccc tgc ctt gcc ggc ccc tgc aca ttt agg ata	2092
Thr Asp Pro Ser Tyr Pro Cys Leu Ala Gly Pro Cys Thr Phe Arg Ile	
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Cys Ser Trp Met Gly Thr Gly Leu Cys Pro Gly Pro Leu Ser Pro Arg	
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ttg tag gcaactggcta gggaggggca ggctctcttc ctgcccctcg agacactctt 2244
 Leu *
 602

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 Met Val Lys Asn Leu Ser Gly Tyr Ser Glu Ser Cys
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aag ctc cta gtg tct cct ctg ggt gga cgc cta ggc gca cgg ccg tta 159
 Lys Leu Leu Val Ser Pro Leu Gly Gly Arg Leu Gly Ala Arg Pro Leu
 13 18 23 28

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 Leu Leu Phe His Leu Trp Ile Arg Gln Phe Leu Val Arg Phe Arg Arg
 29 34 39 44

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 Arg Ser Arg Ala Leu Gly Ala Val Arg Pro Leu Gly Gln Arg Arg Cys
 45 50 55 60

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Ser Gly Ser Ser Ala Arg Ser Ser His Leu Ser Gln Pro Val Val Lys	
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Ser Val Leu Val Tyr Arg Asn Gly Asp Pro Phe Tyr Ala Gly Arg Arg	
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gtc gtc atc cat gag aag aag gtg tcc agc ttc gaa gtc ttc ctg aag	447
Val Val Ile His Glu Lys Lys Val Ser Ser Phe Glu Val Phe Leu Lys	
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gag gtg acc ggc ggc gtt cag gca ccc ttt ggg ggc gtc agg aac atc	495
Glu Val Thr Gly Gly Val Gln Ala Pro Phe Gly Ala Val Arg Asn Ile	
125 130 135 140	
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Tyr Thr Pro Arg Thr Gly His Arg Ile Arg Lys Leu Asp Gln Ile Gln	
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Ser Gly Gly Asn Tyr Val Ala Gly Gly Gln Glu Ala Phe Lys Lys Leu	
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Asn Tyr Leu Asp Ile Gly Glu Ile Lys Lys Arg Pro Met Glu Val Val	
173 178 183 188	
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Asn Thr Glu Val Lys Pro Val Ile His Ser Arg Ile Asn Val Ser Ala	
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Arg Phe Arg Lys Pro Leu Gln Glu Pro Cys Thr Ile Phe Leu Ile Ala	
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Thr Leu Arg Ser Gly Ala Val His Arg Leu Tyr Thr Leu Glu Gly Lys	
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His Ser Lys Ser Thr Val Gly Ser Ser Asp Asn Ser Ser Pro Gln Pro	
333 338 343 348	
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349 354 359 364	
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Asn Ser Asp Glu Gly Ile Phe Lys Ala Gly Ala Glu Arg Ser Glu Thr	
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Arg Gly Ala Ala Glu Val Gln Glu Asp Glu Asp Thr Gln Val Glu Val	
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Asn Gly Asp Leu Glu Glu Glu Gly Gly Arg Glu Ala Thr Asp Ala Pro	
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gct cgt gta aat gga ggc acc gat gag gag aat ggt gag gag ctg cag	1551
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477 482 487 492	
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Ala Tyr Val Asn Ala *	

525

530

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 His Ile Lys Lys Asn Gln Gly Leu Arg Arg Glu Ile Gln Ala His Gly
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 Arg Ser Pro Glu Ala Glu Ala Val Arg Arg Gly Leu Glu Gln Leu Gln
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 Leu Asp Ala Ala Phe Gln Val Glu Gln Tyr Tyr Phe Asp Val Ala Glu
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 gtg gag gcg tgg ctg ggc gag cag gag ctg ctc atg atg agt gag gac 457
 Val Glu Ala Trp Leu Gly Glu Gln Glu Leu Leu Met Met Ser Glu Asp
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Lys Gly Lys Asp Glu Gln Ser Thr Leu Gln Leu Leu Lys Lys His Leu	
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Ser Arg Gln Cys Arg Ala Leu Leu Glu Met Gly His Pro Asp Ser Glu	
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Gln Ile Ser Arg Arg Gln Ser Gln Val Asp Arg Leu Tyr Val Ala Leu	
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Tyr	Ala	Gly	Glu	His	Ala	Glu	Ala	Ile	Ala	Ser	Arg	Glu	Gln	Glu	Val	
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His	Val	Ser	Ser	Thr	Ala	Asp	Ala	Leu	Arg	Phe	His	Ser	Gln	Val	Arg	
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Asp	Lys	Pro	Arg	Cys	Pro	Ser	Ser	Leu	Leu	Gly	Leu	Pro	Ala	Ser	Pro	
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tcc aac atg aac aag aag agt ggg cgg cct gaa gag ctg gtg tcc tgc	845
Ser Asn Met Asn Lys Lys Ser Gly Arg Pro Glu Glu Leu Val Ser Cys	
213 218 223 228	
gca gac tgt gga cgc tct gct cat ttg gga gga gaa ggc agg aag gag	893
Ala Asp Cys Gly Arg Ser Ala His Leu Gly Gly Glu Gly Arg Lys Glu	
229 234 239 244	
aag gag gca gcg gcc gca gca cgt acc acg gag gac tta ttc ggt tcc	941
Lys Glu Ala Ala Ala Ala Ala Arg Thr Thr Glu Asp Leu Phe Gly Ser	
245 250 255 260	
acg tca gaa agt gac acg tca act ttc cac ggc ttt gat gag gac gat	989
Thr Ser Glu Ser Asp Thr Ser Thr Phe His Gly Phe Asp Glu Asp Asp	
261 266 271 276	
ttg gaa gag cct cgc tcc tgt cga gga cgc cgc agt ggc cgg ggt tgc	1037
Leu Glu Glu Pro Arg Ser Cys Arg Gly Arg Arg Ser Gly Arg Gly Ser	
277 282 287 292	
ccc aca gca gat aaa aag ggc agt tgc taa a cccacggaac agactctctg	1088
Pro Thr Ala Asp Lys Lys Gly Ser Cys *	
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 gcccaccgcg tgtacaacgt cccggaggag ccgcctctcc tgggagccga ggactcgtc 180
 ctggccagcc aggaggcgct gcggtattac cggaggaagg tggcccgtg gaacaggcga 240
 cacaag atg tac aga gag cag atg aac ctt acc tcc ctg gac ccc cca 288
 Met Tyr Arg Glu Gln Met Asn Leu Thr Ser Leu Asp Pro Pro
 1 5 10
 ctg cag ctc cga ctc gag gcc agc tgg gtc cag ttc cac ctg ggt att 336
 Leu Gln Leu Arg Leu Glu Ala Ser Trp Val Gln Phe His Leu Gly Ile
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 aac cgc cat ggg ctc tac tcc cgg tcc agc cct gtt gtc agc aaa ctt 384
 Asn Arg His Gly Leu Tyr Ser Arg Ser Ser Pro Val Val Ser Lys Leu
 31 36 41 46
 ctg caa gac atg agg cac ttt ccc acc atc agt gct gat tac agt caa 432
 Leu Gln Asp Met Arg His Phe Pro Thr Ile Ser Ala Asp Tyr Ser Gln
 47 52 57 62
 gat gag aaa gcc ttg ctg ggg gca tgt gac tgc acc cag att gtg aaa 480
 Asp Glu Lys Ala Leu Leu Gly Ala Cys Asp Cys Thr Gln Ile Val Lys
 63 68 73 78
 ccc agt ggg gtc cac ctc aag ctg gtg ctg agg ttc tcg gat ttc ggg 528
 Pro Ser Gly Val His Leu Lys Leu Val Leu Arg Phe Ser Asp Phe Gly
 79 84 89 94
 aag gcc atg ttc aaa ccc atg aga cag cag cga gat gag gag aca cca 576
 Lys Ala Met Phe Lys Pro Met Arg Gln Gln Arg Asp Glu Glu Thr Pro
 95 100 105 110
 gtg gac ttc ttc tac ttc att gac ttt cag aga cac aat gct gag atc 624
 Val Asp Phe Phe Tyr Phe Ile Asp Phe Gln Arg His Asn Ala Glu Ile
 111 116 121 126
 gca gct ttc cat ctg gac agg att ctg gac ttc cga cgg gtg ccg cca 672
 Ala Ala Phe His Leu Asp Arg Ile Leu Asp Phe Arg Arg Val Pro Pro
 127 132 137 142
 aca gtg ggg agg ata gta aat gtc acc aag gaa atc cta gag gtc acc 720
 Thr Val Gly Arg Ile Val Asn Val Thr Lys Glu Ile Leu Glu Val Thr
 143 148 153 158
 aag aat gaa atc ctg cag agt gtt ttc ttt gtc tct cca gcg agc aac 768

Lys	Asn	Glu	Ile	Leu	Gln	Ser	Val	Phe	Phe	Val	Ser	Pro	Ala	Ser	Asn	
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gtg	tgc	ttc	ttc	gcc	aag	tgt	cca	tac	atg	tgc	aag	acg	gag	tat	gct	816
Val	Cys	Phe	Phe	Ala	Lys	Cys	Pro	Tyr	Met	Cys	Lys	Thr	Glu	Tyr	Ala	
175					180					185					190	
gtc	tgt	ggc	aaa	cca	cac	ctg	ctg	gag	ggg	tcc	ctc	tct	gcc	ttc	ctg	864
Val	Cys	Gly	Lys	Pro	His	Leu	Leu	Glu	Gly	Ser	Leu	Ser	Ala	Phe	Leu	
191					196					201					206	
ccg	tcc	ctc	aac	ctg	gcc	ccc	agg	ctg	tct	gtg	ccc	aac	ccc	tgg	atc	912
Pro	Ser	Leu	Asn	Leu	Ala	Pro	Arg	Leu	Ser	Val	Pro	Asn	Pro	Trp	Ile	
207					212					217					222	
cgc	tcc	tac	aca	ctg	gca	gga	aaa	gag	gag	tgg	gag	gtc	aat	ccc	ctt	960
Arg	Ser	Tyr	Thr	Leu	Ala	Gly	Lys	Glu	Glu	Trp	Glu	Val	Asn	Pro	Leu	
223					228					233					238	
tac	tgt	gac	aca	gtg	aaa	cag	atc	tac	ccg	tac	aac	aac	agc	cag	cgg	1008
Tyr	Cys	Asp	Thr	Val	Lys	Gln	Ile	Tyr	Pro	Tyr	Asn	Asn	Ser	Gln	Arg	
239					244					249					254	
ctc	ctc	aat	gtc	atc	gac	atg	gcc	atc	ttc	gac	ttc	ttg	ata	ggg	aat	1056
Leu	Leu	Asn	Val	Ile	Asp	Met	Ala	Ile	Phe	Asp	Phe	Leu	Ile	Gly	Asn	
255					260					265					270	
atg	gac	cgg	cac	cat	tat	gag	atg	ttc	acc	aag	ttc	ggg	gat	gat	ggg	1104
Met	Asp	Arg	His	His	Tyr	Glu	Met	Phe	Thr	Lys	Phe	Gly	Asp	Asp	Gly	
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ttc	ctt	att	cac	ctt	gac	aac	gcc	aga	ggg	ttc	gga	cga	cac	tcc	cat	1152
Phe	Leu	Ile	His	Leu	Asp	Asn	Ala	Arg	Gly	Phe	Gly	Arg	His	Ser	His	
287					292					297					302	
gat	gaa	atc	tcc	atc	ctc	tcg	cct	ctc	tcc	cag	tgc	tgc	atg	ata	aaa	1200
Asp	Glu	Ile	Ser	Ile	Leu	Ser	Pro	Leu	Ser	Gln	Cys	Cys	Met	Ile	Lys	
303					308					313					318	
aag	aaa	aca	ctt	ttg	cac	ctg	cag	ctg	ctg	gcc	caa	gct	gac	tac	aga	1248
Lys	Lys	Thr	Leu	Leu	His	Leu	Gln	Leu	Leu	Ala	Gln	Ala	Asp	Tyr	Arg	
319					324					329					334	
ctc	agc	gat	gtg	atg	cga	gaa	tca	ctg	ctg	gaa	gac	cag	ctc	agc	cct	1296
Leu	Ser	Asp	Val	Met	Arg	Glu	Ser	Leu	Leu	Glu	Asp	Gln	Leu	Ser	Pro	
335					340					345					350	
gtc	ctc	act	gaa	ccc	cac	ctc	ctt	gcc	ctg	gat	cga	agg	ctc	caa	acc	1344
Val	Leu	Thr	Glu	Pro	His	Leu	Leu	Ala	Leu	Asp	Arg	Arg	Leu	Gln	Thr	
351					356					361					366	
atc	cta	agg	aca	gtg	gag	ggg	tgc	ata	gtg	gcc	cat	gga	cag	cag	agt	1392
Ile	Leu	Arg	Thr	Val	Glu	Gly	Cys	Ile	Val	Ala	His	Gly	Gln	Gln	Ser	
367					372					377					382	
gtc	ata	gtc	gac	ggc	cca	gtg	gaa	cag	tcg	gcc	cca	gac	tct	ggc	cag	1440
Val	Ile	Val	Asp	Gly	Pro	Val	Glu	Gln	Ser	Ala	Pro	Asp	Ser	Gly	Gln	

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Ala Asn Leu Thr Ser *				
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ccaaaaagca ctggcttcat caaggccacc gacgatctcc tgagtgcact gggaaatctg				1734
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ggcacgcctc tctgtgacag acctgctga gtgatcccc accatcctgg atggcttcca	360
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caagcgcata acagggtga ccatcagcga cttgoggacc gaggacagcg gcacctacat	540
ttgtgaggtc accaacacct tcggttcggc agaggccaca ggcatactc atg gtc	595
	Met Val
	1
att gat ccc ctt cat gtg acc ctg ¹ aca cca aag aag ctg aag acc ggc	643
Ile Asp Pro Leu His Val Thr Leu Thr Pro Lys Lys Leu Lys Thr Gly	
3 8 13 18	

Val	Val	Phe	Glu	Asn	Gly	Thr	Leu	Lys	Leu	Thr	Asp	Val	Gln	Lys	Gly	
243					248					253					258	
atg	gat	gag	ggg	gag	tac	ctg	tgc	agt	gtc	ctc	atc	cag	ccc	cag	ctc	1411
Met	Asp	Glu	Gly	Glu	Tyr	Leu	Cys	Ser	Val	Leu	Ile	Gln	Pro	Gln	Leu	
259					264					269					274	
tcc	atc	agc	cag	agc	gtt	cac	gta	gcc	gtc	aaa	gtg	ccc	cct	ctg	atc	1459
Ser	Ile	Ser	Gln	Ser	Val	His	Val	Ala	Val	Lys	Val	Pro	Pro	Leu	Ile	
275					280					285					290	
cag	ccc	ttc	gaa	ttc	cca	ccc	gcc	tcc	atc	ggc	cag	ctg	ctc	tac	att	1507
Gln	Pro	Phe	Glu	Phe	Pro	Pro	Ala	Ser	Ile	Gly	Gln	Leu	Leu	Tyr	Ile	
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ccc	tgt	gtg	gtg	tcc	tcg	ggg	gac	atg	ccc	atc	cgt	atc	acc	tgg	agg	1555
Pro	Cys	Val	Val	Ser	Ser	Gly	Asp	Met	Pro	Ile	Arg	Ile	Thr	Trp	Arg	
307					312					317					322	
aag	gac	gga	cag	gtg	atc	atc	tca	ggc	tcg	ggc	gtg	acc	atc	gag	agc	1603
Lys	Asp	Gly	Gln	Val	Ile	Ile	Ser	Gly	Ser	Gly	Val	Thr	Ile	Glu	Ser	
323					328					333					338	
aag	gaa	ttc	atg	agc	tcc	ctg	cag	atc	tct	agc	gtc	tcc	ctc	aag	cac	1651
Lys	Glu	Phe	Met	Ser	Ser	Leu	Gln	Ile	Ser	Ser	Val	Ser	Leu	Lys	His	
339					344					349					354	
aac	ggc	aac	tat	aca	tgc	atc	gcc	agc	aac	gca	gcc	gcc	acc	gtg	agc	1699
Asn	Gly	Asn	Tyr	Thr	Cys	Ile	Ala	Ser	Asn	Ala	Ala	Ala	Thr	Val	Ser	
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cgg	gag	cgc	cag	ctc	atc	gtg	cgt	gtg	ccc	cct	cga	ttt	gtg	gtg	caa	1747
Arg	Glu	Arg	Gln	Leu	Ile	Val	Arg	Val	Pro	Pro	Arg	Phe	Val	Val	Gln	
371					376					381					386	
ccc	aac	aac	cag	gat	ggc	atc	tac	ggc	aaa	gct	ggt	gtg	ctc	aac	tgc	1795
Pro	Asn	Asn	Gln	Asp	Gly	Ile	Tyr	Gly	Lys	Ala	Gly	Val	Leu	Asn	Cys	
387					392					397					402	
tcg	gtg	gac	ggc	tac	ccc	cca	ccc	aag	gtc	atg	tgg	aag	cat	gcc	aag	1843
Ser	Val	Asp	Gly	Tyr	Pro	Pro	Pro	Lys	Val	Met	Trp	Lys	His	Ala	Lys	
403					408					413					418	
ggg	agc	ggg	aac	ccc	cag	cag	tac	cac	cct	gtg	ccc	ctc	act	ggc	cgc	1891
Gly	Ser	Gly	Asn	Pro	Gln	Gln	Tyr	His	Pro	Val	Pro	Leu	Thr	Gly	Arg	
419					424					429					434	
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Ile	Gln	Ile	Leu	Pro	Asn	Ser	Ser	Leu	Leu	Ile	Arg	His	Val	Leu	Glu	
435					440					445					450	
gag	gac	atc	ggc	tac	tac	ctc	tgc	cag	gcc	agc	aac	ggc	gta	ggc	acc	1987
Glu	Asp	Ile	Gly	Tyr	Tyr	Leu	Cys	Gln	Ala	Ser	Asn	Gly	Val	Gly	Thr	
451					456					461					466	
gac	atc	agc	aag	tcc	atg	ttc	ctc	aca	gtc	aag	atc	ccg	gcc	atg	atc	2035
Asp	Ile	Ser	Lys	Ser	Met	Phe	Leu	Thr	Val	Lys	Ile	Pro	Ala	Met	Ile	

467		472		477		482	
act tcc cac ccc aac acc acc atc gcc atc aag ggc cat gcg aag gag	2083						
Thr Ser His Pro Asn Thr Thr Ile Ala Ile Lys Gly His Ala Lys Glu							
483		488		493		498	
cta aac tgc acg gca cgg ggt gag cgg ccc atc atc atc cgc tgg gag	2131						
Leu Asn Cys Thr Ala Arg Gly Glu Arg Pro Ile Ile Ile Arg Trp Glu							
499		504		509		514	
aag ggg gac aca gtc atc gac cct gac cgc gtc atg cgg tat gcc atc	2179						
Lys Gly Asp Thr Val Ile Asp Pro Asp Arg Val Met Arg Tyr Ala Ile							
515		520		525		530	
gcc acc aag gac aac ggc gac gag gtc gtc tcc aca ctg aag ctc aag	2227						
Ala Thr Lys Asp Asn Gly Asp Glu Val Val Ser Thr Leu Lys Leu Lys							
531		536		541		546	
ccc gct gac cgt ggg gac tct gtg ttc ttc agc tgc cat gcc atc aac	2275						
Pro Ala Asp Arg Gly Asp Ser Val Phe Phe Ser Cys His Ala Ile Asn							
547		552		557		562	
tcg tat ggg gag gac cgg ggc ttg atc caa ctc act gtg caa gag ccc	2323						
Ser Tyr Gly Glu Asp Arg Gly Leu Ile Gln Leu Thr Val Gln Glu Pro							
563		568		573		578	
ccc gac ccc cca gag ctg gag atc cgg gag gtg aag gcc cgg agc atg	2371						
Pro Asp Pro Pro Glu Leu Glu Ile Arg Glu Val Lys Ala Arg Ser Met							
579		584		589		594	
aac ctg cgc tgg acc cag cga ttc gac ggg aac agc atc atc acg ggc	2419						
Asn Leu Arg Trp Thr Gln Arg Phe Asp Gly Asn Ser Ile Ile Thr Gly							
595		600		605		610	
ttc gac att gaa tac aag aac aaa tca gat tcc tgg gac ttc aag cag	2467						
Phe Asp Ile Glu Tyr Lys Asn Lys Ser Asp Ser Trp Asp Phe Lys Gln							
611		616		621		626	
tcc aca cgc aac atc tcc ccc acc atc aac cag gcc aac att gtg gac	2515						
Ser Thr Arg Asn Ile Ser Pro Thr Ile Asn Gln Ala Asn Ile Val Asp							
627		632		637		642	
ttg cac ccg gca tct gtg tac agc atc cgc atg tac tct ttc aac aag	2563						
Leu His Pro Ala Ser Val Tyr Ser Ile Arg Met Tyr Ser Phe Asn Lys							
643		648		653		658	
att ggc cgc agt gaa cca agc aag gag ctc acc atc agc act gag gag	2611						
Ile Gly Arg Ser Glu Pro Ser Lys Glu Leu Thr Ile Ser Thr Glu Glu							
659		664		669		674	
gcc gct ccc gat ggg ccc ccc atg gat gtt acc ttg cag cca gtg acc	2659						
Ala Ala Pro Asp Gly Pro Pro Met Asp Val Thr Leu Gln Pro Val Thr							
675		680		685		690	
tca cag agc atc cag gtg acc tgg aag gca ccc aag aag gag ctg cag	2707						
Ser Gln Ser Ile Gln Val Thr Trp Lys Ala Pro Lys Lys Glu Leu Gln							
691		696		701		706	

aac ggt gtc atc cgg ggc tac cag att ggc tac aga gag aac agc ccc	2755
Asn Gly Val Ile Arg Gly Tyr Gln Ile Gly Tyr Arg Glu Asn Ser Pro	
707 712 717 722	
ggc agc aac ggg cag tac agc atc gtg gag atg aag gcc acg ggg gac	2803
Gly Ser Asn Gly Gln Tyr Ser Ile Val Glu Met Lys Ala Thr Gly Asp	
723 728 733 738	
agc gag gtc tac acc ctg gac aac ctc aag aag ttc gcc cag tat ggg	2851
Ser Glu Val Tyr Thr Leu Asp Asn Leu Lys Lys Phe Ala Gln Tyr Gly	
739 744 749 754	
gtg gtg gtc caa gcc ttc aat cgg gct ggc acg ggg ccc tct tcc agc	2899
Val Val Val Gln Ala Phe Asn Arg Ala Gly Thr Gly Pro Ser Ser Ser	
755 760 765 770	
gag atc aat gcc acc act ctg gag gat gtg ccc agc cag ccc cct gag	2947
Glu Ile Asn Ala Thr Thr Leu Glu Asp Val Pro Ser Gln Pro Pro Glu	
771 776 781 786	
aac gtc cgg gcc ctg tcc atc act tct gac gtg gcc gtc atc tcc tgg	2995
Asn Val Arg Ala Leu Ser Ile Thr Ser Asp Val Ala Val Ile Ser Trp	
787 792 797 802	
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Ser Glu Pro Pro Arg Ser Thr Leu Asn Gly Val Leu Lys Gly Tyr Arg	
803 808 813 818	
gtc atc ttc tgg tcc ctc tat gtt gat ggg gag tgg ggc gag atg cag	3091
Val Ile Phe Trp Ser Leu Tyr Val Asp Gly Glu Trp Gly Glu Met Gln	
819 824 829 834	
aac atc acc acc acg cgg gag cgg gtg gag ctg cgg ggc atg gag aag	3139
Asn Ile Thr Thr Thr Arg Glu Arg Val Glu Leu Arg Gly Met Glu Lys	
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Phe Thr Asn Tyr Ser Val Gln Val Leu Ala Tyr Thr Gln Ala Gly Asp	
851 856 861 866	
ggc gta cgc agc agt gtg ctc tac atc cag acc aag gag gac gtt cca	3235
Gly Val Arg Ser Ser Val Leu Tyr Ile Gln Thr Lys Glu Asp Val Pro	
867 872 877 882	
ggc ccc cct gct ggc atc aaa gct gtc cct tca tca gct agc agt gtg	3283
Gly Pro Pro Ala Gly Ile Lys Ala Val Pro Ser Ser Ala Ser Ser Val	
883 888 893 898	
gtt gtg tct tgg ctc ccc cct acc aag ccc aac ggg gtg atc cgc aag	3331
Val Val Ser Trp Leu Pro Pro Thr Lys Pro Asn Gly Val Ile Arg Lys	
899 904 909 914	
tac acc atc ttc tgt tcc agc ccc ggg tct ggc cag ccg gct ccc agc	3379
Tyr Thr Ile Phe Cys Ser Ser Pro Gly Ser Gly Gln Pro Ala Pro Ser	
915 920 925 930	

gag tac gag acg agt cca gag cag ctc ttc tac cgg atc gcc cac cta	3427
Glu Tyr Glu Thr Ser Pro Glu Gln Leu Phe Tyr Arg Ile Ala His Leu	
931 936 941 946	
aac cgc ggt cag cag tat ctg ctg tgg gtg gcc gcc gtc acc tct gcc	3475
Asn Arg Gly Gln Gln Tyr Leu Leu Trp Val Ala Ala Val Thr Ser Ala	
947 952 957 962	
ggc cgg ggc aac agc agc gag aag gtg acc atc gag cct gct ggc aag	3523
Gly Arg Gly Asn Ser Ser Glu Lys Val Thr Ile Glu Pro Ala Gly Lys	
963 968 973 978	
gcc cca gca aag atc atc tcc ttt ggg ggc acc gtg aca aca cct tgg	3571
Ala Pro Ala Lys Ile Ile Ser Phe Gly Gly Thr Val Thr Thr Pro Trp	
979 984 989 994	
atg aaa gat gtt cgg ctg cct tgc aat tca gtg gga gat cca gcc cct	3619
Met Lys Asp Val Arg Leu Pro Cys Asn Ser Val Gly Asp Pro Ala Pro	
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gct gtg aag tgg acc aag gac agt gaa gac tcg gcc att cca gtg tcc	3667
Ala Val Lys Trp Thr Lys Asp Ser Glu Asp Ser Ala Ile Pro Val Ser	
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Met Asp Gly His Arg Leu Ile His Thr Asn Gly Thr Leu Leu Leu Arg	
1027 1032 1037 1042	
gca gtg aag gct gag gac tct ggc tac tac acg tgc acg gcc acc aac	3763
Ala Val Lys Ala Glu Asp Ser Gly Tyr Tyr Thr Cys Thr Ala Thr Asn	
1043 1048 1053 1058	
act ggt ggc ttt gac acc atc atc gtc aac ctt ctg gtg caa gtt ccc	3811
Thr Gly Gly Phe Asp Thr Ile Ile Val Asn Leu Leu Val Gln Val Pro	
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cgc gac cag ccc cgc ctc act gtc tcc aaa acc tca gct tcg tcc atc	3859
Pro Asp Gln Pro Arg Leu Thr Val Ser Lys Thr Ser Ala Ser Ser Ile	
1075 1080 1085 1090	
acc ctg acc tgg att cca ggt gac aat ggg ggc agc tcc atc cga ggc	3907
Thr Leu Thr Trp Ile Pro Gly Asp Asn Gly Gly Ser Ser Ile Arg Gly	
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ttc gtg cta cag tac tcg gtg gac aac agc gag gag tgg aag gat gtg	3955
Phe Val Leu Gln Tyr Ser Val Asp Asn Ser Glu Glu Trp Lys Asp Val	
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ttc atc agc tcc agc gag cgc tcc ttc aag ctg gac agc ctc aag tgt	4003
Phe Ile Ser Ser Ser Glu Arg Ser Phe Lys Leu Asp Ser Leu Lys Cys	
1123 1128 1133 1138	
ggc acg tgg tac aag gtg aag ctg gca gcc aag aac agc gtg ggc tct	4051
Gly Thr Trp Tyr Lys Val Lys Leu Ala Ala Lys Asn Ser Val Gly Ser	
1139 1144 1149 1154	
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Gly Arg Ile Ser Glu Ile Ile Glu Ala Lys Thr His Gly Arg Glu Pro	
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tcc ttc agc aaa gac caa cac ctc ttc acc cac atc aac tcc acg cat	4147
Ser Phe Ser Lys Asp Gln His Leu Phe Thr His Ile Asn Ser Thr His	
1171 1176 1181 1186	
gct cgg ctt aac ctg cag ggc tgg aac aat ggg ggc tgc cct atc aca	4195
Ala Arg Leu Asn Leu Gln Gly Trp Asn Asn Gly Gly Cys Pro Ile Thr	
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gcc atc gtt ctg gag tac cgg ccc aag ggg acc tgg gcc tgg cag ggc	4243
Ala Ile Val Leu Glu Tyr Arg Pro Lys Gly Thr Trp Ala Trp Gln Gly	
1203 1208 1213 1218	
ctc cgg gcc aac agc tcc ggg gag gtg ttt ctg acg gaa ctg cga gag	4291
Leu Arg Ala Asn Ser Ser Gly Glu Val Phe Leu Thr Glu Leu Arg Glu	
1219 1224 1229 1234	
gcc acg tgg tac gag ctg cgc atg agg gct tgc aac agt gcg ggc tgc	4339
Ala Thr Trp Tyr Glu Leu Arg Met Arg Ala Cys Asn Ser Ala Gly Cys	
1235 1240 1245 1250	
ggc aat gaa aca gcc cag ttc gcc acc ctg gac tac gat ggc agc acc	4387
Gly Asn Glu Thr Ala Gln Phe Ala Thr Leu Asp Tyr Asp Gly Ser Thr	
1251 1256 1261 1266	
att cca ccc atc aag tct gct caa ggt gaa ggg gat gat gtg aag aag	4435
Ile Pro Pro Ile Lys Ser Ala Gln Gly Glu Gly Asp Asp Val Lys Lys	
1267 1272 1277 1282	
ctg ttc acc atc ggc tgc cct gtc atc ctg gcc aca ctg ggg gtg gca	4483
Leu Phe Thr Ile Gly Cys Pro Val Ile Leu Ala Thr Leu Gly Val Ala	
1283 1288 1293 1298	
ctg ctc ttc atc gta cgc aag aag agg aag gag aaa cgg ctg aag cga	4531
Leu Leu Phe Ile Val Arg Lys Lys Arg Lys Glu Lys Arg Leu Lys Arg	
1299 1304 1309 1314	
ctc cga gat gca aag agt ttg gca gaa atg ttg ata agc aag aac aat	4579
Leu Arg Asp Ala Lys Ser Leu Ala Glu Met Leu Ile Ser Lys Asn Asn	
1315 1320 1325 1330	
aga agc ttt gac acc cct gtg aaa ggg cca ccc cag ggc cca cgg cta	4627
Arg Ser Phe Asp Thr Pro Val Lys Gly Pro Pro Gln Gly Pro Arg Leu	
1331 1336 1341 1346	
cac att gac atc ccc agg gtc cag ctg ctc atc gag gac aaa gaa ggc	4675
His Ile Asp Ile Pro Arg Val Gln Leu Leu Ile Glu Asp Lys Glu Gly	
1347 1352 1357 1362	
atc aag caa ctg gga gat gac aag gcc acc atc cct gtg aca gat gct	4723
Ile Lys Gln Leu Gly Asp Asp Lys Ala Thr Ile Pro Val Thr Asp Ala	
1363 1368 1373 1378	
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Glu Phe Ser Gln Ala Val Asn Pro Gln Ser Phe Cys Thr Gly Val Ser	

1379	1384	1389	1394	
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Leu His His Pro Thr Leu Ile Gln Ser Thr Gly Pro Leu Ile Asp Met				
1395	1400	1405	1410	
tct gac atc cgg cca gga acc aat cca gtg tcc agg aag aat gtg aag				4867
Ser Asp Ile Arg Pro Gly Thr Asn Pro Val Ser Arg Lys Asn Val Lys				
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tca gcc cac agc acc cgg aac cgg tac tca agc cag tgg acc ctg acc				4915
Ser Ala His Ser Thr Arg Asn Arg Tyr Ser Ser Gln Trp Thr Leu Thr				
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aag tgc cag gcc tcc aca cct gcc cgc acc ctc acc tcc gac tgg cgc				4963
Lys Cys Gln Ala Ser Thr Pro Ala Arg Thr Leu Thr Ser Asp Trp Arg				
1443	1448	1453	1458	
acc gtg ggc tcc cag cat ggt gtc acg gtc act gag agt gac agc tac				5011
Thr Val Gly Ser Gln His Gly Val Thr Val Thr Glu Ser Asp Ser Tyr				
1459	1464	1469	1474	
agt gcc agc ctg tcc cag gac aca gac aaa gga agg aac agc atg gtg				5059
Ser Ala Ser Leu Ser Gln Asp Thr Asp Lys Gly Arg Asn Ser Met Val				
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tcc act gag agt gcc tct tcc acc tac gag gag ctg gcc cgg gcc tat				5107
Ser Thr Glu Ser Ala Ser Ser Thr Tyr Glu Glu Leu Ala Arg Ala Tyr				
1491	1496	1501	1506	
gag cat gcc aag ctg gag gag cag ctg cag cac gcc aag ttt gag atc				5155
Glu His Ala Lys Leu Glu Glu Gln Leu Gln His Ala Lys Phe Glu Ile				
1507	1512	1517	1522	
acc gag tgc ttc atc tct gac agt tcc tct gac cag atg acc aca ggc				5203
Thr Glu Cys Phe Ile Ser Asp Ser Ser Ser Asp Gln Met Thr Thr Gly				
1523	1528	1533	1538	
acc aac gag aac gcc gac agc atg aca tcc atg agc aca ccc tca gag				5251
Thr Asn Glu Asn Ala Asp Ser Met Thr Ser Met Ser Thr Pro Ser Glu				
1539	1544	1549	1554	
cct ggc atc tgc cgc ttt acc gcc tca cca ccc aag ccc cag gat gcg				5299
Pro Gly Ile Cys Arg Phe Thr Ala Ser Pro Pro Lys Pro Gln Asp Ala				
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gac cgg ggc aaa aac gtg gct gtg ccc atc cct cac cgg gcc aac aag				5347
Asp Arg Gly Lys Asn Val Ala Val Pro Ile Pro His Arg Ala Asn Lys				
1571	1576	1581	1586	
agt gac tac tgc aac ctg ccc ctg tat gcc aag tca gag gcc ttc ttt				5395
Ser Asp Tyr Cys Asn Leu Pro Leu Tyr Ala Lys Ser Glu Ala Phe Phe				
1587	1592	1597	1602	
cga aag gca gat gga cgt gag ccc tgc ccc gtg gtc cca ccc cgt gag				5443
Arg Lys Ala Asp Gly Arg Glu Pro Cys Pro Val Val Pro Pro Arg Glu				
1603	1608	1613	1618	

gcc tcc atc cgg aac ctg gct cga acc tac cac acc cag gct cgc cac	5491
Ala Ser Ile Arg Asn Leu Ala Arg Thr Tyr His Thr Gln Ala Arg His	
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ctg acc ctg gac cct gcc agc aag tcc ttg ggc ctt ccc cac cca ggg	5539
Leu Thr Leu Asp Pro Ala Ser Lys Ser Leu Gly Leu Pro His Pro Gly	
1635 1640 1645 1650	
gcc ccc gct gcc gcc tcc aca gcc acc tta cct cag agg act ctg gcc	5587
Ala Pro Ala Ala Ala Ser Thr Ala Thr Leu Pro Gln Arg Thr Leu Ala	
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atg cca gcc ccc cca gcc ggc aca gcc ccc cca gcc ccc ggc ccc acc	5635
Met Pro Ala Pro Pro Ala Gly Thr Ala Pro Pro Ala Pro Gly Pro Thr	
1667 1672 1677 1682	
cct gct gag cca ccc acc gcc ccc agc gct gcc cct ccg gcc ccc agc	5683
Pro Ala Glu Pro Pro Thr Ala Pro Ser Ala Ala Pro Pro Ala Pro Ser	
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acc gag cct cca cga gcc ggg ggc cca cac acc aaa atg ggg ggc tcc	5731
Thr Glu Pro Pro Arg Ala Gly Gly Pro His Thr Lys Met Gly Gly Ser	
1699 1704 1709 1714	
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Arg Asp Ser Leu Leu Glu Met Ser Thr Ser Gly Val Gly Arg Ser Gln	
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tttgtgtcag ttatgttcct cagaaatggt ttttcattct cctgcctggc agcgcgtgttc	180

ataag	atg att gtg gac agg cag tat atg ggc gtg tct aag cgg aag	227
	Met Ile Val Asp Arg Gln Tyr Met Gly Val Ser Lys Arg Lys	
	1 5 10	
tgc atc gtg tgg ggt gtc gcc ttc ttg tcc gat ggc act atc ata agt	275	
Cys Ile Val Trp Gly Val Ala Phe Leu Ser Asp Gly Thr Ile Ile Ser		
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gtg gac tct gct ggg aag gtg cag ttc tgg gac tca gcc act ggg acg	323	
Val Asp Ser Ala Gly Lys Val Gln Phe Trp Asp Ser Ala Thr Gly Thr		
31 36 41 46		
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Leu Val Lys Ser His Leu Ile Ala Asn Ala Asp Val Gln Ser Ile Ala		
47 52 57 62		
gta gct gac ttt ttc cca ggt cat gag tct cgg gct aca gaa gct ttg	419	
Val Ala Asp Phe Phe Pro Gly His Glu Ser Arg Ala Thr Glu Ala Leu		
63 68 73 78		
tgc tgg gca gaa gga cag cga ctc ttt agt gct ggg ctc aat ggc gag	467	
Cys Trp Ala Glu Gly Gln Arg Leu Phe Ser Ala Gly Leu Asn Gly Glu		
79 84 89 94		
att atg gag tat gat tta cag gcg tta aac atc aag tat gct atg gat	515	
Ile Met Glu Tyr Asp Leu Gln Ala Leu Asn Ile Lys Tyr Ala Met Asp		
95 100 105 110		
gcc ttt gga gga cct att tgg agc atg gct gcc agc ccc agt ggc tct	563	
Ala Phe Gly Gly Pro Ile Trp Ser Met Ala Ala Ser Pro Ser Gly Ser		
111 116 121 126		
caa ctt ttg gtt ggt tgt gaa gat gga tct gtg aaa cta ttt caa att	611	
Gln Leu Leu Val Gly Cys Glu Asp Gly Ser Val Lys Leu Phe Gln Ile		
127 132 137 142		
acc cca gac aaa atc cag ttt gaa aga aat ttt gat cgg cag aaa agt	659	
Thr Pro Asp Lys Ile Gln Phe Glu Arg Asn Phe Asp Arg Gln Lys Ser		
143 148 153 158		
cgc atc ctg agt ctc agc tgg cat ccc tct ggt acc cac att gca gct	707	
Arg Ile Leu Ser Leu Ser Trp His Pro Ser Gly Thr His Ile Ala Ala		
159 164 169 174		
ggt tcc ata gac tac att agt gtg ttt gat gtc aaa tca ggc agc gct	755	
Gly Ser Ile Asp Tyr Ile Ser Val Phe Asp Val Lys Ser Gly Ser Ala		
175 180 185 190		
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Val His Lys Met Ile Val Asp Arg Gln Tyr Met Gly Val Ser Lys Arg		
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aag tgc atc gtg tgg ggt gtc gcc ttc ttg tcc gat ggc act atc ata	851	
Lys Cys Ile Val Trp Gly Val Ala Phe Leu Ser Asp Gly Thr Ile Ile		
207 212 217 222		

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Ser Val Asp Ser Ala Gly Lys Val Gln Phe Trp Asp Ser Ala Thr Gly	
223 228 233 238	
acg ctt gtg aag agc cat ctc atc gct aat gct gac gtg cag tcc att	947
Thr Leu Val Lys Ser His Leu Ile Ala Asn Ala Asp Val Gln Ser Ile	
239 244 249 254	
gct gta gct gac caa gaa gac agt ttc gtg gtg ggc aca gcc gag gga	995
Ala Val Ala Asp Gln Glu Asp Ser Phe Val Val Gly Thr Ala Glu Gly	
255 260 265 270	
aca gtc ttc cat ttt cag ctg gtc cct gtg aca tct aac agc agt gag	1043
Thr Val Phe His Phe Gln Leu Val Pro Val Thr Ser Asn Ser Ser Glu	
271 276 281 286	
aag cag tgg gtg cgg aca aaa ccg ttc cag cat cac act cat gac gtg	1091
Lys Gln Trp Val Arg Thr Lys Pro Phe Gln His His Thr His Asp Val	
287 292 297 302	
cgc act gtg gcc cac agc cca aca gcg ctg ata tct gga ggc act gac	1139
Arg Thr Val Ala His Ser Pro Thr Ala Leu Ile Ser Gly Gly Thr Asp	
303 308 313 318	
acc cac tta gtc ttt cgt cct ctc atg gag aag gtg gaa gta aag aat	1187
Thr His Leu Val Phe Arg Pro Leu Met Glu Lys Val Glu Val Lys Asn	
319 324 329 334	
tac gat gcc gct ctc cga aaa atc acc ttt cac cac cga tgt ctc atc	1235
Tyr Asp Ala Ala Leu Arg Lys Ile Thr Phe His His Arg Cys Leu Ile	
335 340 345 350	
tcc tgt tct aaa aag agg cag ctt ctc ctc ttc cag ttt gct cat cac	1283
Ser Cys Ser Lys Lys Arg Gln Leu Leu Leu Phe Gln Phe Ala His His	
351 356 361 366	
tta gaa ctt tgg cga ctg gga tcc aca gtt gca aca ggc aag aat ggg	1331
Leu Glu Leu Trp Arg Leu Gly Ser Thr Val Ala Thr Gly Lys Asn Gly	
367 372 377 382	
gat act ctt cca ctc tct aaa aat gca gat cat tta ctg cac cta aag	1379
Asp Thr Leu Pro Leu Ser Lys Asn Ala Asp His Leu Leu His Leu Lys	
383 388 393 398	
aca aag ggt cct gag aac att atc tgt agc tgt atc tcc cca tgt gga	1427
Thr Lys Gly Pro Glu Asn Ile Ile Cys Ser Cys Ile Ser Pro Cys Gly	
399 404 409 414	
agt tgg ata gcc tat tct aca gtt tct cgg ttt ttt ctc tat cgg ctg	1475
Ser Trp Ile Ala Tyr Ser Thr Val Ser Arg Phe Phe Leu Tyr Arg Leu	
415 420 425 430	
aat tat gaa cat gac aac ata agc ctc aaa agg gtt tcc aaa atg cca	1523
Asn Tyr Glu His Asp Asn Ile Ser Leu Lys Arg Val Ser Lys Met Pro	
431 436 441 446	
gca ttc ctt cgc tct gcc ctt cag att ttg ttt tct gaa gat tca aca	1571

Ala Phe Leu Arg Ser	Ala Leu Gln Ile Leu Phe Ser Glu Asp Ser Thr	
447	452 457	462
aag ctc ttt gta gca tca aat caa gga gct ctg cat att gtt cag ctg		1619
Lys Leu Phe Val Ala Ser Asn Gln Gly Ala Leu His Ile Val Gln Leu		
463	468 473	478
tca gga gga agc ttc aag cac ctg cat gct ttc cag cct cag tca gga		1667
Ser Gly Gly Ser Phe Lys His Leu His Ala Phe Gln Pro Gln Ser Gly		
479	484 489	494
aca gtg gag gcc atg tgt ctt ttg gca gtc agt cca gat ggg aat tgg		1715
Thr Val Glu Ala Met Cys Leu Leu Ala Val Ser Pro Asp Gly Asn Trp		
495	500 505	510
cta gct gca tca ggt acc agt gct gga gtc cat gtc tac aac gta aaa		1763
Leu Ala Ala Ser Gly Thr Ser Ala Gly Val His Val Tyr Asn Val Lys		
511	516 521	526
cag cta aag ctt cac tgc acg gtg cct gct tac aat ttc cca gtg act		1811
Gln Leu Lys Leu His Cys Thr Val Pro Ala Tyr Asn Phe Pro Val Thr		
527	532 537	542
gct atg gct att gcc ccc aat acc aac aac ctt gtc atc gct cat tcg		1859
Ala Met Ala Ile Ala Pro Asn Thr Asn Asn Leu Val Ile Ala His Ser		
543	548 553	558
gac cag cag gta ttt gag tac agc atc cca gac aaa cag tat aca gat		1907
Asp Gln Gln Val Phe Glu Tyr Ser Ile Pro Asp Lys Gln Tyr Thr Asp		
559	564 569	574
tgg agc cgg act gtc cag aag cag ggc ttt cac cac ctt tgg ctc caa		1955
Trp Ser Arg Thr Val Gln Lys Gln Gly Phe His His Leu Trp Leu Gln		
575	580 585	590
agg gat act cct atc aca cac atc agt ttt cat ccc aag aga ccg atg		2003
Arg Asp Thr Pro Ile Thr His Ile Ser Phe His Pro Lys Arg Pro Met		
591	596 601	606
cac atc ctt ctc cat gat gcc tac atg ttc tgc atc att gac aag tca		2051
His Ile Leu Leu His Asp Ala Tyr Met Phe Cys Ile Ile Asp Lys Ser		
607	612 617	622
ttg ccc ctt cca aat gac aaa acc tta ctc tac aat cca ttt cct ccc		2099
Leu Pro Leu Pro Asn Asp Lys Thr Leu Leu Tyr Asn Pro Phe Pro Pro		
623	628 633	638
acg aat gac atc att gct cag ctc cca cca ccc att aaa aag aag aaa		2147
Thr Asn Asp Ile Ile Ala Gln Leu Pro Pro Pro Ile Lys Lys Lys Lys		
639	644 649	654
ttt gga acc taa aac agggcactgt ctgtgtcctt ccttgaactg tctaccctgt		2202
Phe Gly Thr *		
655		
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 Met Ser Gln Leu Arg Leu Leu Pro
 1 5
 tcc cgt ctt ggg gta cag gct gcg agg ctc ctg gct gca cat gac gtc 161
 Ser Arg Leu Gly Val Gln Ala Ala Arg Leu Leu Ala Ala His Asp Val
 9 14 19 24
 ccg gtg ttt ggc tgg cgc agc agg tcc tcc ggg cca ccg gcc acc ttc 209
 Pro Val Phe Gly Trp Arg Ser Arg Ser Ser Gly Pro Pro Ala Thr Phe
 25 30 35 40
 cca agc agc aaa ggt gga ggc ggc tcc agt tac atg gag gag atg tac 257
 Pro Ser Ser Lys Gly Gly Gly Ser Ser Tyr Met Glu Glu Met Tyr
 41 46 51 56
 ttc gcc tgg ttg gaa aac ccc cag agt gtc cac aag tcc tgg gac agc 305
 Phe Ala Trp Leu Glu Asn Pro Gln Ser Val His Lys Ser Trp Asp Ser
 57 62 67 72
 ttc ttc agg gaa gcc agc gag gaa gcc ttt tct ggc tct gct cag cca 353
 Phe Phe Arg Glu Ala Ser Glu Glu Ala Phe Ser Gly Ser Ala Gln Pro
 73 78 83 88
 cgg ccc cct tct gtt gtc cat gag agc agg tct gca gtc tca agt cgg 401
 Arg Pro Pro Ser Val Val His Glu Ser Arg Ser Ala Val Ser Ser Arg
 89 94 99 104
 acc aag acc agc aaa ttg gtg gag gac cac ctg gct gtg cag tcc ctg 449
 Thr Lys Thr Ser Lys Leu Val Glu Asp His Leu Ala Val Gln Ser Leu
 105 110 115 120
 atc cgg gcc tac cag atc cgg ggt cac cat gtg gcc cag ctg gac ccc 497
 Ile Arg Ala Tyr Gln Ile Arg Gly His His Val Ala Gln Leu Asp Pro
 121 126 131 136
 ctg ggc att ctg gat gca gac ctg gac tcc ttt gtg ccc tca gac ttg 545
 Leu Gly Ile Leu Asp Ala Asp Leu Asp Ser Phe Val Pro Ser Asp Leu
 137 142 147 152
 atc aca acc att gat aaa ctg gcc ttc tat gac ctt cag gag gct gac 593
 Ile Thr Thr Ile Asp Lys Leu Ala Phe Tyr Asp Leu Gln Glu Ala Asp

153	158	163	168	
ctt gat aag gag ttc cag ctg ccg aca acc acc ttc att ggg ggc tct				641
Leu Asp Lys Glu Phe Gln Leu Pro Thr Thr Thr Phe Ile Gly Gly Ser				
169	174	179	184	
gaa aac acc ctt tct ctg cgg gag atc att cgg cgc ctg gag aac acc				689
Glu Asn Thr Leu Ser Leu Arg Glu Ile Ile Arg Arg Leu Glu Asn Thr				
185	190	195	200	
tac tgc cag cac att ggc ctg gag ttc atg ttc atc aac gat gtg gag				737
Tyr Cys Gln His Ile Gly Leu Glu Phe Met Phe Ile Asn Asp Val Glu				
201	206	211	216	
cag tgc cag tgg atc cgg cag aag ttt gag acc cct ggt gtg atg cag				785
Gln Cys Gln Trp Ile Arg Gln Lys Phe Glu Thr Pro Gly Val Met Gln				
217	222	227	232	
ttc tcc agc gag gag aag cgg acc ctg ctg gcc cgg cta gtg cgc tcc				833
Phe Ser Ser Glu Glu Lys Arg Thr Leu Leu Ala Arg Leu Val Arg Ser				
233	238	243	248	
atg agg ttt gaa gac ttc ctg gcc cgg aaa tgg tcc tca gag aag cgg				881
Met Arg Phe Glu Asp Phe Leu Ala Arg Lys Trp Ser Ser Glu Lys Arg				
249	254	259	264	
ttt ggc ctg gag ggc tgt gaa gtg atg att cct gcc ctc aag acc atc				929
Phe Gly Leu Glu Gly Cys Glu Val Met Ile Pro Ala Leu Lys Thr Ile				
265	270	275	280	
atc gac aaa tcc agc gag atg ggg att gag aat gtc atc ttg ggg atg				977
Ile Asp Lys Ser Ser Glu Met Gly Ile Glu Asn Val Ile Leu Gly Met				
281	286	291	296	
cca cac agg gga agg ctg aac gtg ctg gcc aac gtg atc cgc aag gac				1025
Pro His Arg Gly Arg Leu Asn Val Leu Ala Asn Val Ile Arg Lys Asp				
297	302	307	312	
ctg gag cag atc ttc tgc cgg ttt gac ccc aag ctg gag gcg gcg gac				1073
Leu Glu Gln Ile Phe Cys Arg Phe Asp Pro Lys Leu Glu Ala Ala Asp				
313	318	323	328	
gag ggc tcc ggg gat gtc aag tac cac ctg ggc atg tac cat gag agg				1121
Glu Gly Ser Gly Asp Val Lys Tyr His Leu Gly Met Tyr His Glu Arg				
329	334	339	344	
atc aac cgc gtc acc aac cgg aac atc act ctg tgc ctg gtt gcc aac				1169
Ile Asn Arg Val Thr Asn Arg Asn Ile Thr Leu Ser Leu Val Ala Asn				
345	350	355	360	
ccc tcc cac ctg gag gca gtg gac cct gtg gtg cag ggg aag aca aag				1217
Pro Ser His Leu Glu Ala Val Asp Pro Val Val Gln Gly Lys Thr Lys				
361	366	371	376	
gca gag cag ttc tac cgt gga gat gcc cag ggc aag aag gtc atg tcc				1265
Ala Glu Gln Phe Tyr Arg Gly Asp Ala Gln Gly Lys Lys Val Met Ser				
377	382	387	392	

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Ile Leu Val His Gly Asp Ala Ala Phe Ala Gly Gln Gly Val Val Tyr	
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gag acc ttc cac ctg agc gac ctg ccc tcc tac acg acc aat ggt acc	1361
Glu Thr Phe His Leu Ser Asp Leu Pro Ser Tyr Thr Thr Asn Gly Thr	
409 414 419 424	
gtg cac gtc gtc gtc aac aac cag att gga ttc acc aca gac ccc cga	1409
Val His Val Val Val Asn Asn Gln Ile Gly Phe Thr Thr Asp Pro Arg	
425 430 435 440	
atg gcc cgc tcc tca cca tac ccg acc gac gtg gcc cgg gtg gtc aat	1457
Met Ala Arg Ser Ser Pro Tyr Pro Thr Asp Val Ala Arg Val Val Asn	
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gcg cct atc ttc cat gtg aat gcc gat gac cca gag gct gtg ata tat	1505
Ala Pro Ile Phe His Val Asn Ala Asp Asp Pro Glu Ala Val Ile Tyr	
457 462 467 472	
gtg tgc agt gtg gca gcc gaa tgg aga aac act ttc aac aaa gat gtt	1553
Val Cys Ser Val Ala Ala Glu Trp Arg Asn Thr Phe Asn Lys Asp Val	
473 478 483 488	
gtc gtg gac ctg gtc tgt tac cgc cgg cgt ggc cac aat gag atg gac	1601
Val Val Asp Leu Val Cys Tyr Arg Arg Arg Gly His Asn Glu Met Asp	
489 494 499 504	
gag ccc atg ttc acc cag ccg ctc atg tac aag cag atc cac aga cag	1649
Glu Pro Met Phe Thr Gln Pro Leu Met Tyr Lys Gln Ile His Arg Gln	
505 510 515 520	
gtg cct gtg ctg aag aag tac gca gac aag ctg att gcc gag ggc aca	1697
Val Pro Val Leu Lys Lys Tyr Ala Asp Lys Leu Ile Ala Glu Gly Thr	
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1121	1126	1131	1136	
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Glu Arg Val Val Leu Arg Trp Arg Pro Gln Pro Pro Ala Glu Gly Pro				
1137	1142	1147	1152	
ggc ggt gag ctg act gtg ccg ggc acc acg cgc acc gtc agc ctg ccc				3504
Gly Gly Glu Leu Thr Val Pro Gly Thr Thr Arg Thr Val Ser Leu Pro				
1153	1158	1163	1168	
gac ctc agg ccc ggc acc acc tac cac gtg gag gtc cac ggg gtg cgg				3552
Asp Leu Arg Pro Gly Thr Thr Tyr His Val Glu Val His Gly Val Arg				
1169	1174	1179	1184	
gcg ggg cag acc tcc aag tcc tac gcc ttc atc acc acc aca ggg tcc				3600
Ala Gly Gln Thr Ser Lys Ser Tyr Ala Phe Ile Thr Thr Thr Gly Ser				
1185	1190	1195	1200	
tca ccc ttg ggc ctc ttg ggg act acc gat gag cct cct ccc tca ggc				3648
Ser Pro Leu Gly Leu Leu Gly Thr Thr Asp Glu Pro Pro Pro Ser Gly				
1201	1206	1211	1216	
ccc tcg acg acg caa ggg gcc cag gct cct ctc ctg cag cag cgc ccc				3696
Pro Ser Thr Thr Gln Gly Ala Gln Ala Pro Leu Leu Gln Gln Arg Pro				
1217	1222	1227	1232	
cag gag ctg gga gag ttg agg gtg ctg ggc aga gat gag aca ggg cgc				3744
Gln Glu Leu Gly Glu Leu Arg Val Leu Gly Arg Asp Glu Thr Gly Arg				
1233	1238	1243	1248	
ctc cgt gtg gtc tgg acc gcc cag cct gac acc ttt gcc tac ttc caa				3792
Leu Arg Val Val Trp Thr Ala Gln Pro Asp Thr Phe Ala Tyr Phe Gln				
1249	1254	1259	1264	
ctg cgc atg cgg gtg ccc gag ggg ccg ggg gca cat gag gaa gtg ctg				3840
Leu Arg Met Arg Val Pro Glu Gly Pro Gly Ala His Glu Glu Val Leu				
1265	1270	1275	1280	
cca ggg gac gtc cgc cag gct ctg gtg cct cca ccc cct cct gga acc				3888
Pro Gly Asp Val Arg Gln Ala Leu Val Pro Pro Pro Pro Gly Thr				
1281	1286	1291	1296	

tcc cgt cga aac ccc aag ccc cag tcc cag gct gcc agt tca gca cct	4608
Ser Arg Arg Asn Pro Lys Pro Gln Ser Gln Ala Ala Ser Ser Ala Pro	
1521 1526 1531 1536	
ggc tgg atc tcc ttg ttt aca gct cca gag agg aaa gag gag ccc ccc	4656
Gly Trp Ile Ser Leu Phe Thr Ala Pro Glu Arg Lys Glu Glu Pro Pro	
1537 1542 1547 1552	
cgc cct gag ttc ctg gag cag ccc ctc ctg ggg gaa ctg aca gtg acc	4704
Arg Pro Glu Phe Leu Glu Gln Pro Leu Leu Gly Glu Leu Thr Val Thr	
1553 1558 1563 1568	
ggc gtg acc cca gac tcc ttg cgt ctc tca tgg aca gtg gcc cag ggc	4752
Gly Val Thr Pro Asp Ser Leu Arg Leu Ser Trp Thr Val Ala Gln Gly	
1569 1574 1579 1584	
ccc ttc gac tca ttc atg gtc cag tac aag gat gca cag ggg cag ccc	4800
Pro Phe Asp Ser Phe Met Val Gln Tyr Lys Asp Ala Gln Gly Gln Pro	
1585 1590 1595 1600	
cag gca gtg cct gtt gcg ggg gat gag aat gag gtt act gtc ccc ggc	4848
Gln Ala Val Pro Val Ala Gly Asp Glu Asn Glu Val Thr Val Pro Gly	
1601 1606 1611 1616	
ctg gat ccc gac cgg aag tat aag atg aac ctc tac ggg ctt cgt ggc	4896
Leu Asp Pro Asp Arg Lys Tyr Lys Met Asn Leu Tyr Gly Leu Arg Gly	
1617 1622 1627 1632	
agg cag cgt gtg ggg ccc gag tct gtg gtg gcc aag act gct cct cag	4944
Arg Gln Arg Val Gly Pro Glu Ser Val Val Ala Lys Thr Ala Pro Gln	
1633 1638 1643 1648	
gag gat gtg gac gag acc ccc agc ccc aca gaa ctg ggc acg gag gcc	4992
Glu Asp Val Asp Glu Thr Pro Ser Pro Thr Glu Leu Gly Thr Glu Ala	
1649 1654 1659 1664	
ccg gag tcc ccc gag gag ccg ctc ctg ggg gag ctg aca gtg aca gga	5040
Pro Glu Ser Pro Glu Glu Pro Leu Leu Gly Glu Leu Thr Val Thr Gly	
1665 1670 1675 1680	
tcc tcc cct gat tcg ctg agc ctc ttc tgg acc gtc ccc cag ggc agc	5088
Ser Ser Pro Asp Ser Leu Ser Leu Phe Trp Thr Val Pro Gln Gly Ser	
1681 1686 1691 1696	
ttc gac tct ttc acc gtg cag tac aag gac agg gat ggg cgg ccc cgg	5136
Phe Asp Ser Phe Thr Val Gln Tyr Lys Asp Arg Asp Gly Arg Pro Arg	
1697 1702 1707 1712	
gcg gtg cgt gtt ggg ggc aag gag agt gag gtc acc gtg gga ggc cta	5184
Ala Val Arg Val Gly Gly Lys Glu Ser Glu Val Thr Val Gly Gly Leu	
1713 1718 1723 1728	
gag ccc ggg cac aag tac aag atg cac ctg tac ggc ctc cac gag ggg	5232
Glu Pro Gly His Lys Tyr Lys Met His Leu Tyr Gly Leu His Glu Gly	
1729 / 1734 1739 1744	
cag cgc gtg ggc ccg gtg tcc gcc gtg ggc gtg aca ggg acc cac act	5280

Gln Arg Val Gly Pro Val Ser Ala Val Gly Val Thr Gly Thr His Thr	
1745	1750 1755 1760
ggg ctc tgt gag gcc ctg tgc ctg gtc cct ggg atg agg ccc ttt agg	5328
Gly Leu Cys Glu Ala Leu Cys Leu Val Pro Gly Met Arg Pro Phe Arg	
1761	1766 1771 1776
aaa gaa atg ggc atc agt gcg cat tat cag agc agc aaa agg acg aag	5376
Lys Glu Met Gly Ile Ser Ala His Tyr Gln Ser Ser Lys Arg Thr Lys	
1777	1782 1787 1792
cag ctg gag tcc gcc aag ctg ggg gct gtg tct ggc agc aca cac agt	5424
Gln Leu Glu Ser Ala Lys Leu Gly Ala Val Ser Gly Ser Thr His Ser	
1793	1798 1803 1808
gca gtt gcc agg ggg aga gcc tca gac acc gag cag gga cct agt gaa	5472
Ala Val Ala Arg Gly Arg Ala Ser Asp Thr Glu Gln Gly Pro Ser Glu	
1809	1814 1819 1824
gga ctg ttg acc aga cag atg ttc aga tca atg cgc ttt tac atc aaa	5520
Gly Leu Leu Thr Arg Gln Met Phe Arg Ser Met Arg Phe Tyr Ile Lys	
1825	1830 1835 1840
acc atc atg cgg gtt cca caa atg caa cag aca tcg ctg gcc cca caa	5568
Thr Ile Met Arg Val Pro Gln Met Gln Gln Thr Ser Leu Ala Pro Gln	
1841	1846 1851 1856
caa gaa gag acc cct cca gcc act gag tcc ccg ctg gag cca cgc cta	5616
Gln Glu Glu Thr Pro Pro Ala Thr Glu Ser Pro Leu Glu Pro Arg Leu	
1857	1862 1867 1872
gga gag ctg aca gtg aca gat gtg acc ccc aac tct gtg ggc ctc tcc	5664
Gly Glu Leu Thr Val Thr Asp Val Thr Pro Asn Ser Val Gly Leu Ser	
1873	1878 1883 1888
tgg aca gtc ccc gag ggc cag ttt gac tcc ttc ata gtc cag tac aag	5712
Trp Thr Val Pro Glu Gly Gln Phe Asp Ser Phe Ile Val Gln Tyr Lys	
1889	1894 1899 1904
gac aag gac ggg cag ccc cag gtg gtg ccg gtg gcg gca gac cag cga	5760
Asp Lys Asp Gly Gln Pro Gln Val Val Pro Val Ala Ala Asp Gln Arg	
1905	1910 1915 1920
gag gtc aca gtc tac aac ctg gag cct gag aga aaa tat aag atg aac	5808
Glu Val Thr Val Tyr Asn Leu Glu Pro Glu Arg Lys Tyr Lys Met Asn	
1921	1926 1931 1936
atg tat gga cta cat gat ggg caa cgc atg ggc ccc ctg tct gtg gtc	5856
Met Tyr Gly Leu His Asp Gly Gln Arg Met Gly Pro Leu Ser Val Val	
1937	1942 1947 1952
atc gtg acg gcc cca gcc aca gag gcc tcc aag cct ccc ctg gag cca	5904
Ile Val Thr Ala Pro Ala Thr Glu Ala Ser Lys Pro Pro Leu Glu Pro	
1953	1958 1963 1968
cgc cta ggg gag ctg aca gtg acg gat ata acc cct gac tct gtg ggc	5952
Arg Leu Gly Glu Leu Thr Val Thr Asp Ile Thr Pro Asp Ser Val Gly	

1969	1974	1979	1984
ctc tca tgg aca gtc cct gag ggt gaa ttc gac tcc ttt gtg gtt cag Leu Ser Trp Thr Val Pro Glu Gly Glu Phe Asp Ser Phe Val Val Gln 1985 1990 1995 2000			6000
tac aag gac agg gac ggg cag ccc cag gtg gtg ccc gtg gct gca gat Tyr Lys Asp Arg Asp Gly Gln Pro Gln Val Val Pro Val Ala Ala Asp 2001 2006 2011 2016			6048
cag cgg gag gtc act atc cct gac ctg gaa ccc tcc cgc aag tac aag Gln Arg Glu Val Thr Ile Pro Asp Leu Glu Pro Ser Arg Lys Tyr Lys 2017 2022 2027 2032			6096
ttc ctg ctc ttt ggg atc cag gat ggg aaa cga cgc agc cca gtc tct Phe Leu Leu Phe Gly Ile Gln Asp Gly Lys Arg Arg Ser Pro Val Ser 2033 2038 2043 2048			6144
gtg gag gca aag acg gtt gcc cga ggt gac gcc agc cca ggg gcc cca Val Glu Ala Lys Thr Val Ala Arg Gly Asp Ala Ser Pro Gly Ala Pro 2049 2054 2059 2064			6192
ccc cgc ctt ggg gag ctg tgg gtg aca gac ccc acc cca gac tca ctg Pro Arg Leu Gly Glu Leu Trp Val Thr Asp Pro Thr Pro Asp Ser Leu 2065 2070 2075 2080			6240
cgc ctc tcc tgg acg gtt cct gag ggc cag ttc gac tct ttt gtg gtc Arg Leu Ser Trp Thr Val Pro Glu Gly Gln Phe Asp Ser Phe Val Val 2081 2086 2091 2096			6288
cag ttc aag gac aaa gac ggg ccc cag gtg gtg ccc gtg gag ggc cat Gln Phe Lys Asp Lys Asp Gly Pro Gln Val Val Pro Val Glu Gly His 2097 2102 2107 2112			6336
gag cgc tct gtc act gtc acc cct ctg gat gcc ggc cgc aag tac aga Glu Arg Ser Val Thr Val Thr Pro Leu Asp Ala Gly Arg Lys Tyr Arg 2113 2118 2123 2128			6384
ttc ctc ctc tat ggc ctc ctg ggc aag aag cgc cat ggc cct ctc act Phe Leu Leu Tyr Gly Leu Leu Gly Lys Lys Arg His Gly Pro Leu Thr 2129 2134 2139 2144			6432
gcc gac ggc acc acg gaa gcc cgg agt gct atg gat gat act gga aca Ala Asp Gly Thr Thr Glu Ala Arg Ser Ala Met Asp Asp Thr Gly Thr 2145 2150 2155 2160			6480
aag cgt ccc cca aaa ccc cgt ctg ggg gag gag ctg cag gtg acc acc Lys Arg Pro Pro Lys Pro Arg Leu Gly Glu Glu Leu Gln Val Thr Thr 2161 2166 2171 2176			6528
gtg acc cag aac tcc gtg ggc ctc tcc tgg aca gtc cct gag ggc cag Val Thr Gln Asn Ser Val Gly Leu Ser Trp Thr Val Pro Glu Gly Gln 2177 2182 2187 2192			6576
ttt gac tcc ttt gtg gtc cag tac aaa gac agg gac ggg cag ccc cag Phe Asp Ser Phe Val Val Gln Tyr Lys Asp Arg Asp Gly Gln Pro Gln 2193 2198 2203 2208			6624

gtg gtg ccc gtg gag ggc agc ctc agg gag gtc agc gtg ccg ggc ctg Val Val Pro Val Glu Gly Ser Leu Arg Glu Val Ser Val Pro Gly Leu 2209 2214 2219 2224	6672
gac cct gcc cac agg tac aag ctg ctg ctc tac ggg ctg cac cac ggc Asp Pro Ala His Arg Tyr Lys Leu Leu Leu Tyr Gly Leu His His Gly 2225 2230 2235 2240	6720
aag cgt gtg ggc ccc atc tcg gcc gtc gcc att act gcg cct gag ccc Lys Arg Val Gly Pro Ile Ser Ala Val Ala Ile Thr Ala Pro Glu Pro 2241 2246 2251 2256	6768
cac ctc ggg gag ttg aca gtg gag gag gcc acg tca ^g cac acc ctg cat His Leu Gly Glu Leu Thr Val Glu Glu Ala Thr Ser His Thr Leu His 2257 2262 2267 2272	6816
ctc tcc tgg atg gtg act gag gga gaa ttt gac tcc ttc gaa atc cag Leu Ser Trp Met Val Thr Glu Gly Glu Phe Asp Ser Phe Glu Ile Gln 2273 2278 2283 2288	6864
tac aca gat aga gac ggg caa ctc caa atg gtc cgc ata gga ggt gac Tyr Thr Asp Arg Asp Gly Gln Leu Gln Met Val Arg Ile Gly Gly Asp 2289 2294 2299 2304	6912
cgg aat gac atc acc ctc tct ggc ctg gaa tcc gac cac aga tac ctg Arg Asn Asp Ile Thr Leu Ser Gly Leu Glu Ser Asp His Arg Tyr Leu 2305 2310 2315 2320	6960
gtg acc ctg tat ggt ttc agt gat ggg aag cat gta ggt cct gtc cat Val Thr Leu Tyr Gly Phe Ser Asp Gly Lys His Val Gly Pro Val His 2321 2326 2331 2336	7008
gtc gag gcc ctg aca gtc ccg gag gag gag aag cct tca gaa cct ccc Val Glu Ala Leu Thr Val Pro Glu Glu Glu Lys Pro Ser Glu Pro Pro 2337 2342 2347 2352	7056
acc gca acc ccc gag ccc ccc atc aag cct cgc ctg ggg gag ctg acc Thr Ala Thr Pro Glu Pro Pro Ile Lys Pro Arg Leu Gly Glu Leu Thr 2353 2358 2363 2368	7104
gtg aca gat gcc acc cct gac tcc ctc agc ctg tcc tgg aca gtt ccc Val Thr Asp Ala Thr Pro Asp Ser Leu Ser Leu Ser Trp Thr Val Pro 2369 2374 2379 2384	7152
gag gga cag ttt gac cac ttc ctg gtc cag tac agg aat gga gat ggg Glu Gly Gln Phe Asp His Phe Leu Val Gln Tyr Arg Asn Gly Asp Gly 2385 2390 2395 2400	7200
cag ccc aag gca gtg agg gtg cca ggg cac gag gaa ggg gtc acc atc Gln Pro Lys Ala Val Arg Val Pro Gly His Glu Glu Gly Val Thr Ile 2401 2406 2411 2416	7248
tcg ggc ctg gag cca gac cat aaa ^l tac aag atg aac ctg tac ggc ttc Ser Gly Leu Glu Pro Asp His Lys Tyr Lys Met Asn Leu Tyr Gly Phe 2417 2422 2427 2432	7296

cac ggt ggc cag cgc atg ggc cct gtg tct gtc gtc ggg gtg aca gct His Gly Gly Gln Arg Met Gly Pro Val Ser Val Val Gly Val Thr Ala 2433 2438 2443 2448	7344
gca gag gaa gag acc ccc agc ccc aca gaa ccc agc atg gag gcc ccg Ala Glu Glu Glu Thr Pro Ser Pro Thr Glu Pro Ser Met Glu Ala Pro 2449 2454 2459 2464	7392
gag ccc gct gag gag ccg ctc ctg ggg gag cta aca gtg aca gga tcc Glu Pro Ala Glu Glu Pro Leu Leu Gly Glu Leu Thr Val Thr Gly Ser 2465 2470 2475 2480	7440
tcc cct gac tcg ctg agc ctc tcc tgg acc gtc ccc cag ggc cgc ttc Ser Pro Asp Ser Leu Ser Leu Ser Trp Thr Val Pro Gln Gly Arg Phe 2481 2486 2491 2496	7488
gac tcc ttc acc gtg cag tac aag gac agg gac ggg cgg ccc cag gtg Asp Ser Phe Thr Val Gln Tyr Lys Asp Arg Asp Gly Arg Pro Gln Val 2497 2502 2507 2512	7536
gtg cgt gtt ggg ggc gag gag agt gaa gtc acc gtg ggg ggc ctg gag Val Arg Val Gly Gly Glu Glu Ser Glu Val Thr Val Gly Gly Leu Glu 2513 2518 2523 2528	7584
cct ggg cgc aag tac aag atg cac ctg tac ggc ctc cac gag ggg cgg Pro Gly Arg Lys Tyr Lys Met His Leu Tyr Gly Leu His Glu Gly Arg 2529 2534 2539 2544	7632
cgc gtg ggc cca gtg tct gct gtg ggc gtc acg gcc ccc gaa gag gag Arg Val Gly Pro Val Ser Ala Val Gly Val Thr Ala Pro Glu Glu Glu 2545 2550 2555 2560	7680
tcc cct gat gct cct ctt gca aag ctg cgc cta ggg cag atg aca gtg Ser Pro Asp Ala Pro Leu Ala Lys Leu Arg Leu Gly Gln Met Thr Val 2561 2566 2571 2576	7728
aga gac atc acc tcc gac tcc ctc agc ctc tcc tgg aca gtc ccc gag Arg Asp Ile Thr Ser Asp Ser Leu Ser Leu Ser Trp Thr Val Pro Glu 2577 2582 2587 2592	7776
ggc cag ttt gac cat ttc ttg gtc cag ttt aag aat ggg gac ggg cag Gly Gln Phe Asp His Phe Leu Val Gln Phe Lys Asn Gly Asp Gly Gln 2593 2598 2603 2608	7824
ccc aag gcg gtg cgg gtg ccg gga cac gag gat ggg gtc acc atc tcg Pro Lys Ala Val Arg Val Pro Gly His Glu Asp Gly Val Thr Ile Ser 2609 2614 2619 2624	7872
ggc ctg gag cca gac cac aag tac aag atg aac ctg tac ggc ttc cac Gly Leu Glu Pro Asp His Lys Tyr Lys Met Asn Leu Tyr Gly Phe His 2625 2630 2635 2640	7920
ggt ggc cag cgc gtg ggc ccc gtg tct gct gtt ggt tta act gcc cca Gly Gly Gln Arg Val Gly Pro Val Ser Ala Val Gly Leu Thr Ala Pro 2641 2646 2651 2656	7968
gga aag gat gaa gaa atg gcc cca gcc tcg aca gaa cct ccc acc cct	8016

2881	2886	2891	2896	
cct ctc ctg ggg gag ctg aca gtg aca gga tcc tcc cct gac tcg ctg				8736
Pro Leu Leu Gly Glu Leu Thr Val Thr Gly Ser Ser Pro Asp Ser Leu				
2897	2902	2907	2912	
agc ctt tcc tgg acc gtc ccc cag ggc cgc ttt gac tcc ttc acc gtg				8784
Ser Leu Ser Trp Thr Val Pro Gln Gly Arg Phe Asp Ser Phe Thr Val				
2913	2918	2923	2928	
cag tac aag gac agg gac ggg cgg ccc cag gcg gtg cgt gtt ggg ggc				8832
Gln Tyr Lys Asp Arg Asp Gly Arg Pro Gln Ala Val Arg Val Gly Gly				
2929	2934	2939	2944	
cag gag agc aag gtc act gtg agg ggc ctg gag cct ggg cgc aag tac				8880
Gln Glu Ser Lys Val Thr Val Arg Gly Leu Glu Pro Gly Arg Lys Tyr				
2945	2950	2955	2960	
aag atg cac ctg tac ggc ctc cac gag ggg cgg cgc ctg ggc ccg gtg				8928
Lys Met His Leu Tyr Gly Leu His Glu Gly Arg Arg Leu Gly Pro Val				
2961	2966	2971	2976	
tct gcc gtg ggc gtc aca gag gat gaa gcc gag acc acc caa gca gtg				8976
Ser Ala Val Gly Val Thr Glu Asp Glu Ala Glu Thr Thr Gln Ala Val				
2977	2982	2987	2992	
cct acc atg acc cct gag ccc ccc atc aag cct cgc ctg ggg gag ctg				9024
Pro Thr Met Thr Pro Glu Pro Pro Ile Lys Pro Arg Leu Gly Glu Leu				
2993	2998	3003	3008	
acc atg aca gat gcc acc cct gac tcc ctc agc ctg tcc tgg acg gtt				9072
Thr Met Thr Asp Ala Thr Pro Asp Ser Leu Ser Leu Ser Trp Thr Val				
3009	3014	3019	3024	
ccc gag ggc cag ttt gac cac ttc ctg gtc cag tac agg aat ggg gat				9120
Pro Glu Gly Gln Phe Asp His Phe Leu Val Gln Tyr Arg Asn Gly Asp				
3025	3030	3035	3040	
ggg cag ccc aag gcg gtg cgg gtg ccg ggg cac gag gac ggg gtc acc				9168
Gly Gln Pro Lys Ala Val Arg Val Pro Gly His Glu Asp Gly Val Thr				
3041	3046	3051	3056	
atc tca ggc ctg gag cca gac cat aaa tac aag atg aac ctg tac ggc				9216
Ile Ser Gly Leu Glu Pro Asp His Lys Tyr Lys Met Asn Leu Tyr Gly				
3057	3062	3067	3072	
ttc cac ggt ggc cag cgc gtg ggc ccc atc tct gtc att ggg gtg acg				9264
Phe His Gly Gly Gln Arg Val Gly Pro Ile Ser Val Ile Gly Val Thr				
3073	3078	3083	3088	
gct gca gag gaa gag acc ccc agc ccc acg gaa ctc agc act gag gcc				9312
Ala Ala Glu Glu Glu Thr Pro Ser Pro Thr Glu Leu Ser Thr Glu Ala				
3089	3094	3099	3104	
cgg gag ccc cct gag gag ccg ctc ctg ggg/gag ctg aca gtg aca gga				9360
Arg Glu Pro Pro Glu Glu Pro Leu Leu Gly Glu Leu Thr Val Thr Gly				
3105	3110	3115	3120	

tcc tcc cct gac tcg ctg agc ctc tcc tgg acc atc ccc cag ggc cac Ser Ser Pro Asp Ser Leu Ser Leu Ser Trp Thr Ile Pro Gln Gly His 3121 3126 3131 3136	9408
ttc gac tcc ttc acc gtg cag tac aag gac agg gac ggg cgg ccc cag Phe Asp Ser Phe Thr Val Gln Tyr Lys Asp Arg Asp Gly Arg Pro Gln 3137 3142 3147 3152	9456
gtg atg cgt gtc agg ggc gag gag agc gag gtc acc gtg ggg ggc ctg Val Met Arg Val Arg Gly Glu Glu Ser Glu Val Thr Val Gly Gly Leu 3153 3158 3163 3168	9504
gag ccc ggg cgc aaa tac aag atg cac ctg tac ggc ctc cac gag ggg Glu Pro Gly Arg Lys Tyr Lys Met His Leu Tyr Gly Leu His Glu Gly 3169 3174 3179 3184	9552
cgg cgt gtg ggc ccg gtg tcc acc gtg ggt gtg aca gct cca gag gat Arg Arg Val Gly Pro Val Ser Thr Val Gly Val Thr Ala Pro Glu Asp 3185 3190 3195 3200	9600
gaa gca gag acc acc caa gca gtg ccc acc aca acc cct gag ccc ccc Glu Ala Glu Thr Thr Gln Ala Val Pro Thr Thr Thr Pro Glu Pro Pro 3201 3206 3211 3216	9648
aac aag cct cgc ctc ggg gag ctg acc gtg aca gat gcc acc cct gac Asn Lys Pro Arg Leu Gly Glu Leu Thr Val Thr Asp Ala Thr Pro Asp 3217 3222 3227 3232	9696
tcc ctc agc ctg tcc tgg atg gtc ccc gag ggc cag ttt gac cac ttc Ser Leu Ser Leu Ser Trp Met Val Pro Glu Gly Gln Phe Asp His Phe 3233 3238 3243 3248	9744
ctg gtc cag tac agg aat ggg gat ggg cag ccc aag gtg gtg cgg gtg Leu Val Gln Tyr Arg Asn Gly Asp Gly Gln Pro Lys Val Val Arg Val 3249 3254 3259 3264	9792
ccg ggg cac gag gac ggg gtc acc atc tca ggc ctg gag cca gac cac Pro Gly His Glu Asp Gly Val Thr Ile Ser Gly Leu Glu Pro Asp His 3265 3270 3275 3280	9840
aag tac aag atg aac ctg tac ggc ttc cac ggt ggc cag cgc gtg ggc Lys Tyr Lys Met Asn Leu Tyr Gly Phe His Gly Gly Gln Arg Val Gly 3281 3286 3291 3296	9888
ccc atc tct gtc att ggg gtg aca gct gca gag gaa gaa act ccc gcc Pro Ile Ser Val Ile Gly Val Thr Ala Ala Glu Glu Glu Thr Pro Ala 3297 3302 3307 3312	9936
ccc aca gaa ccc agc acg gag gcc ccg gag ccc cct gag gag ccg ctc Pro Thr Glu Pro Ser Thr Glu Ala Pro Glu Pro Pro Glu Glu Pro Leu 3313 3318 3323 3328	9984
ctg ggg gag ctg aca gtg aca gga tcc tcc cct gac tcg ctg agc ctc Leu Gly Glu Leu Thr Val Thr Gly Ser Ser Pro Asp Ser Leu Ser Leu 3329 3334 3339 3344	10032

tcc tgg acc atc ccc cag ggc cgc ttc gac tcc ttc act gtg cag tac	10080
Ser Trp Thr Ile Pro Gln Gly Arg Phe Asp Ser Phe Thr Val Gln Tyr	
3345 3350 3355 3360	
aag gac agg gac ggg cgg ccc cag gtg gtg cgt gtc agg ggc gag gag	10128
Lys Asp Arg Asp Gly Arg Pro Gln Val Val Arg Val Arg Gly Glu Glu	
3361 3366 3371 3376	
agc gag gtc acc gtg ggg ggc ctg gag ccc ggg tgc aaa tac aag atg	10176
Ser Glu Val Thr Val Gly Gly Leu Glu Pro Gly Cys Lys Tyr Lys Met	
3377 3382 3387 3392	
cac ctg tac ggc ctc cac gag ggg cag cgc gtg ggc cca gtg tcc gct	10224
His Leu Tyr Gly Leu His Glu Gly Gln Arg Val Gly Pro Val Ser Ala	
3393 3398 3403 3408	
gtg ggt gtg aca gct cca aag gat gaa gcc gag acc acc caa gca gtg	10272
Val Gly Val Thr Ala Pro Lys Asp Glu Ala Glu Thr Thr Gln Ala Val	
3409 3414 3419 3424	
cct acc atg acc cct gag ccc ccc atc aag cct cgc ctg ggg gag ctg	10320
Pro Thr Met Thr Pro Glu Pro Pro Ile Lys Pro Arg Leu Gly Glu Leu	
3425 3430 3435 3440	
acc gtg aca gat gcc acc ccc gac tcc ctc agc ctg tcc tgg atg gtt	10368
Thr Val Thr Asp Ala Thr Pro Asp Ser Leu Ser Leu Ser Trp Met Val	
3441 3446 3451 3456	
ccc gag ggc cag ttt gac cac ttc ctg gtc cag tac agg aat ggg gat	10416
Pro Glu Gly Gln Phe Asp His Phe Leu Val Gln Tyr Arg Asn Gly Asp	
3457 3462 3467 3472	
ggg cag ccc aag gcg gtg cgg gtg ccg ggg cac gag gac ggg gtc acc	10464
Gly Gln Pro Lys Ala Val Arg Val Pro Gly His Glu Asp Gly Val Thr	
3473 3478 3483 3488	
atc tca ggc ctg gag cca gac cat aaa tac aag atg aac ctg tac ggc	10512
Ile Ser Gly Leu Glu Pro Asp His Lys Tyr Lys Met Asn Leu Tyr Gly	
3489 3494 3499 3504	
ttc cac ggt ggc cag cgc gta ggc cct gtg tct gcc att ggg gtg acg	10560
Phe His Gly Gly Gln Arg Val Gly Pro Val Ser Ala Ile Gly Val Thr	
3505 3510 3515 3520	
gag gaa gag acc ccc agc ccc aca gaa ccc agc act gag gcc ccg gag	10608
Glu Glu Glu Thr Pro Ser Pro Thr Glu Pro Ser Thr Glu Ala Pro Glu	
3521 3526 3531 3536	
gcc cct gag gag ccg ctc ctg ggg gag ttg aca gtg aca gga tcc tcc	10656
Ala Pro Glu Glu Pro Leu Leu Gly Glu Leu Thr Val Thr Gly Ser Ser	
3537 3542 3547 3552	
cct gac tcg ctg agc ctc tcc tgg acc gtc ccc cag ggc cgc ttc gac	10704
Pro Asp Ser Leu Ser Leu Ser Trp Thr Val Pro Gln Gly Arg Phe Asp	
3553 3558 3563 3568	
tcc ttc acc gtg cag tac aag gac agg gac ggg cag ccc cag gtg gtg	10752

3793	3798	3803	3808
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3809	3814	3819	3824
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3873	3878	3883	3888
ttt ctg ctc tac ggg ctc ctt ggg gga aag cgc ctg ggc ccg gtc tct Phe Leu Leu Tyr Gly Leu Leu Gly Gly Lys Arg Leu Gly Pro Val Ser			11712
3889	3894	3899	3904
gcc ctg gga atg aca gcc cca gaa gag gac aca cca gcc cca gag tta Ala Leu Gly Met Thr Ala Pro Glu Glu Asp Thr Pro Ala Pro Glu Leu			11760
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3921	3926	3931	3936
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3937	3942	3947	3952
gcc cag ggc ccc ttt gat tcc ttc gtg gtc cag tat gag gac acg aac Ala Gln Gly Pro Phe Asp Ser Phe Val Val Gln Tyr Glu Asp Thr Asn			11904
3953	3958	3963	3968
ggg cag ccc cag gcc ttg ctc gtg gac ggc gac cag agc aag atc ctc Gly Gln Pro Gln Ala Leu Leu Val Asp Gly Asp Gln Ser Lys Ile Leu			11952
3969	3974	3979	3984
atc tca ggc ctg gag ccc agc acc ccc tac agg ttc ctc ctc tat ggc Ile Ser Gly Leu Glu Pro Ser Thr Pro Tyr Arg Phe Leu Leu Tyr Gly			12000
3985	3990	3995	4000
ctc cat gaa ggg aag cgc ctg ggg ccc ctc tca gct gag ggc acc aca Leu His Glu Gly Lys Arg Leu Gly Pro Leu Ser Ala Glu Gly Thr Thr			12048
4001	4006	4011	4016
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4017	4022	4027	4032

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Ser Gln Leu Ser Val Thr Asp Val Thr Thr Ser Ser Leu Arg Leu Asn	
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Trp Glu Ala Pro Pro Gly Ala Phe Asp Ser Phe Leu Leu Arg Phe Gly	
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Val Pro Ser Pro Ser Thr Leu Glu Pro His Pro Arg Pro Leu Leu Gln	
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Arg Glu Leu Met Val Pro Gly Thr Arg His Ser Ala Val Leu Arg Asp	
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Leu Arg Ser Gly Thr Leu Tyr Ser Leu Thr Leu Tyr Gly Leu Arg Gly	
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Pro His Lys Ala Asp Ser Ile Gln Gly Thr Ala Arg Thr Leu Ser Pro	
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gtt ctg gag agc ccc cgt gac ctc caa ttc agt gaa atc agg gag acc	12432
Val Leu Glu Ser Pro Arg Asp Leu Gln Phe Ser Glu Ile Arg Glu Thr	
4129 4134 4139 4144	
tca gcc aag gtc aac tgg atg ccc cca cca tcc cgg gcg gac agc ttc	12480
Ser Ala Lys Val Asn Trp Met Pro Pro Pro Ser Arg Ala Asp Ser Phe	
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Lys Val Ser Tyr Gln Leu Ala Asp Gly Gly Glu Pro Gln Ser Val Gln	
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Val Asp Gly Gln Ala Arg Thr Gln Lys Leu Gln Gly Leu Ile Pro Gly	
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Glu Pro Leu Thr Gly Phe Leu Thr Thr Val Pro Asp Gly Pro Thr Gln	
4209 4214 4219 4224	
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Leu Arg Ala Leu Asn Leu Thr Glu Gly Phe Ala Val Leu His Trp Lys	
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Pro Pro Gln Asn Pro Val Asp Thr Tyr Asp Val Gln Val Thr Ala Pro	
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ctc cca gga ggg atc aca tct cac cag ctc qtt ggc ctc ttt ccc tcc Leu Pro Gly Gly Ile Thr Ser His Gln Leu Leu Gly Leu Phe Pro Ser 4353 4358 4363 4368	13104
acc tcc tac aat gca cgg ctc cag gcc atg tgg ggc cag agc ctc ctg Thr Ser Tyr Asn Ala Arg Leu Gln Ala Met Trp Gly Gln Ser Leu Leu 4369 4374 4379 4384	13152
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cgc atg gat gga cag aca gac ttc tgg agg gac tgg gag gac tat gcc Arg Met Asp Gly Gln Thr Asp Phe Trp Arg Asp Trp Glu Asp Tyr Ala 4449 4454 4459 4464	13392
cat ggt ttt ggg aac atc tct gga gag ttc tgg ctg ggc aat gag gcc His Gly Phe Gly Asn Ile Ser Gly Glu Phe Trp Leu Gly Asn Glu Ala 4465 4470 4475 4480	13440
ctg cac agc ctg aca cag gca ggt gac tac tcc atg cgc gtg gac ctg	13488

Leu	His	Ser	Leu	Thr	Gln	Ala	Gly	Asp	Tyr	Ser	Met	Arg	Val	Asp	Leu	
4481					4486				4491						4496	
cgg	gct	ggg	gac	gag	gct	gtg	ttc	gcc	cag	tac	gac	tcc	ttc	cac	gta	13536
Arg	Ala	Gly	Asp	Glu	Ala	Val	Phe	Ala	Gln	Tyr	Asp	Ser	Phe	His	Val	
4497					4502				4507						4512	
gac	tcg	gct	gcg	gag	tac	tac	cgc	ctc	cac	ttg	gag	ggc	tac	cac	ggc	13584
Asp	Ser	Ala	Ala	Glu	Tyr	Tyr	Arg	Leu	His	Leu	Glu	Gly	Tyr	His	Gly	
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acc	gca	ggg	gac	tcc	atg	agc	tac	cac	agc	ggc	agt	gtc	ttc	tct	gcc	13632
Thr	Ala	Gly	Asp	Ser	Met	Ser	Tyr	His	Ser	Gly	Ser	Val	Phe	Ser	Ala	
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cgt	gat	cgg	gac	ccc	aac	agc	ttg	ctc	atc	tcc	tgc	gct	gtc	tcc	tac	13680
Arg	Asp	Arg	Asp	Pro	Asn	Ser	Leu	Leu	Ile	Ser	Cys	Ala	Val	Ser	Tyr	
4545					4550				4555						4560	
cga	ggg	gcc	tgg	tgg	tac	agg	aac	tgc	cac	tac	gcc	aac	ctc	aac	ggg	13728
Arg	Gly	Ala	Trp	Trp	Tyr	Arg	Asn	Cys	His	Tyr	Ala	Asn	Leu	Asn	Gly	
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ctc	tac	ggg	agc	aca	gtg	gac	cat	cag	gga	gtg	agc	tgg	tac	cac	tgg	13776
Leu	Tyr	Gly	Ser	Thr	Val	Asp	His	Gln	Gly	Val	Ser	Trp	Tyr	His	Trp	
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Lys	Gly	Phe	Glu	Phe	Ser	Val	Pro	Phe	Thr	Glu	Met	Lys	Leu	Arg	Pro	
4593					4598				4603						4608	
aga	aac	ttt	cgc	tcc	cca	gcg	ggg	gga	ggc	tga						13857
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Met Ala Glu Ala Ala Ala Leu Val Trp Ile Arg Gly Pro Gly Phe Gly
   1             5             10             15

tgc aag gcg gtg cgg tgt gcc tcg ggt cgg tgc acc gtc cgg gat ttt      156
Cys Lys Ala Val Arg Cys Ala Ser Gly Arg Cys Thr Val Arg Asp Phe

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Ile His Arg His Cys Gln Asp Gln Asn Val Pro Val Glu Asn Phe Phe				
33	38	43	48	
gtg aaa tgc aat gga gca ctc att aac acc agt gac aca gtg cag cat				252
Val Lys Cys Asn Gly Ala Leu Ile Asn Thr Ser Asp Thr Val Gln His				
49	54	59	64	
gga gct gtt tat agt ttg gaa ccc aga ctt tgc ggt gga aaa gga ggt				300
Gly Ala Val Tyr Ser Leu Glu Pro Arg Leu Cys Gly Gly Lys Gly Gly				
65	70	75	80	
ttt gga tct atg ctc cga gca ctt ggt gct cag att gag aag aca acc				348
Phe Gly Ser Met Leu Arg Ala Leu Gly Ala Gln Ile Glu Lys Thr Thr				
81	86	91	96	
aat cga gaa gct tgt cgg gat ctc agt gga agg aga cta cgc gat gtc				396
Asn Arg Glu Ala Cys Arg Asp Leu Ser Gly Arg Arg Leu Arg Asp Val				
97	102	107	112	
aat cat gaa aaa gca atg gct gaa tgg gta aaa caa caa gcc gag cga				444
Asn His Glu Lys Ala Met Ala Glu Trp Val Lys Gln Gln Ala Glu Arg				
113	118	123	128	
gag gct gaa aag gag cag aag cgg ctg gag cga ctg cag cgg aag ctt				492
Glu Ala Glu Lys Glu Gln Lys Arg Leu Glu Arg Leu Gln Arg Lys Leu				
129	134	139	144	
gta gaa ccc aag cac tgc ttc acc agc ccc gac tac cag cag cag tgc				540
Val Glu Pro Lys His Cys Phe Thr Ser Pro Asp Tyr Gln Gln Gln Cys				
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cat gag atg gct gag cgt ctg gag gat tcc gtc ctc aaa ggt atg cag				588
His Glu Met Ala Glu Arg Leu Glu Asp Ser Val Leu Lys Gly Met Gln				
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gct gcc tcc agc aag atg gtt tca gca gaa atc agt gag aat cgg aaa				636
Ala Ala Ser Ser Lys Met Val Ser Ala Glu Ile Ser Glu Asn Arg Lys				
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cgg caa tgg cct act aaa tct caa aca gac aga gga gcc agt gcg gga				684
Arg Gln Trp Pro Thr Lys Ser Gln Thr Asp Arg Gly Ala Ser Ala Gly				
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Lys Arg Arg Cys Phe Trp Leu Gly Met Glu Gly Leu Glu Thr Ala Glu				
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Gly Ser Asn Ser Glu Ser Ser Asp Asp Asp Ser Glu Glu Ala Pro Ser				
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Thr Ser Gly Met Gly Phe His Ala Pro Lys Ile Gly Ser Asn Gly Val				
241	246	251	256	

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aat aca gac cat gga tca cca gaa caa ctg cag atc ccg gtg act gac Asn Thr Asp His Gly Ser Pro Glu Gln Leu Gln Ile Pro Val Thr Asp 273 278 283 288	924
tct ggg agg cat att tta gaa gac tca tgt gct gag ctg ggg gag tcc Ser Gly Arg His Ile Leu Glu Asp Ser Cys Ala Glu Leu Gly Glu Ser 289 294 299 304	972
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	Met Leu
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Leu Ser Lys Pro Asp Asp Ser Thr Glu Ala His Glu Gly Asp Pro Thr	
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Asn Gly Ser Gly Glu Gln Ser Lys Thr Ser Asn Asn Gly Gly Gly Leu	
51 56 61 66	
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Gly Lys Lys Met Arg Ala Ile Ser Trp Thr Met Lys Lys Lys Val Gly	
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Lys Lys Tyr Ile Lys Ala Leu Ser Glu Glu Lys Asp Glu Glu Asp Gly	
83 88 93 98	
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Glu Asn Ala His Pro Tyr Arg Asn Ser Asp Pro Val Ile Gly Thr His	
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Thr Glu Lys Val Ser Leu Lys Ala Ser Asp Ser Met Asp Ser Leu Tyr	
115 120 125 130	
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Ser Gly Gln Ser Ser Ser Ser Gly Ile Thr Ser Cys Ser Asp Gly Thr	
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Ser Asn Arg Asp Ser Phe Arg Leu Asp Asp Asp Gly Pro Tyr Ser Gly	
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Pro Phe Cys Gly Arg Ala Arg Val His Thr Asp Phe Thr Pro Ser Pro	
163 168 173 178	
tat gac act gac tcc ctc aaa atc aag aaa gga gac atc ata gac att	693
Tyr Asp Thr Asp Ser Leu Lys Ile Lys Lys Gly Asp Ile Ile Asp Ile	
179 184 189 194	

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gattgtctca ttgtagtg cgaatcttct tgcctacttg tatctgggaa tttactttg 240
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Met Pro Lys Glu
1

aaa tac gag ccc cct gac cct cgg agg atg tat aca att atg tct tct 343
Lys Tyr Glu Pro Pro Asp Pro Arg Arg Met Tyr Thr Ile Met Ser Ser
5 10 15 20

gag gaa gca gca aat gga aag aaa tcc cac tgg gca gag ctt gaa ata 391
Glu Glu Ala Ala Asn Gly Lys Lys Ser His Trp Ala Glu Leu Glu Ile
21 26 31 36

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Ser Gly Lys Val Arg Ser Leu Ser Ala Ser Leu Trp Ser Leu Thr His
37 42 47 52

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Asp Ile Ala Lys Leu His Asn Leu Val Tyr Leu Asp Leu Ser Ser Asn
69 74 79 84

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gag ctc cat tta aat aac aac ctg tta cga gtt cta cct ttt gag ctg Glu Leu His Leu Asn Asn Asn Leu Leu Arg Val Leu Pro Phe Glu Leu 101 106 111 116	631
gga aaa ctg ttt cag ttg cag act tta ggc ctg aaa gga aat ccc ctt Gly Lys Leu Phe Gln Leu Gln Thr Leu Gly Leu Lys Gly Asn Pro Leu 117 122 127 132	679
acc cag gat ata ttg aac ctt tat cag gaa cca gat gga aca aga cgg Thr Gln Asp Ile Leu Asn Leu Tyr Gln Glu Pro Asp Gly Thr Arg Arg 133 138 143 148	727
ctg ctg aac tat ttg ctt ggt aat ttg tca ggt act gca aaa aga att Leu Leu Asn Tyr Leu Leu Gly Asn Leu Ser Gly Thr Ala Lys Arg Ile 149 154 159 164	775
aca aca gaa caa cca cct cca agg tct tgg att atg tta caa gaa cca Thr Thr Glu Gln Pro Pro Pro Arg Ser Trp Ile Met Leu Gln Glu Pro 165 170 175 180	823
gat agg aca agg cca act gcc ttg ttt tct gtc atg tgc tat aat gtt Asp Arg Thr Arg Pro Thr Ala Leu Phe Ser Val Met Cys Tyr Asn Val 181 186 191 196	871
ctt tgt gat aaa tat gcg acc cgg cag tta tac ggc tac tgt cca tca Leu Cys Asp Lys Tyr Ala Thr Arg Gln Leu Tyr Gly Tyr Cys Pro Ser 197 202 207 212	919
tgg gcg cta aac tgg gac tac agg aaa aag gcc att att caa gaa atc Trp Ala Leu Asn Trp Asp Tyr Arg Lys Lys Ala Ile Ile Gln Glu Ile 213 218 223 228	967
ttg agc tgc aat gct gat atc gta agt ctt cag gag gtt gaa acg gaa Leu Ser Cys Asn Ala Asp Ile Val Ser Leu Gln Glu Val Glu Thr Glu 229 234 239 244	1015
cag tat tac agt ttt ttt ctg gta gag ctg aaa gaa cgt ggc tat aat Gln Tyr Tyr Ser Phe Phe Leu Val Glu Leu Lys Glu Arg Gly Tyr Asn 245 250 255 260	1063
gga ttc ttc agt cct aag tct aga gct agg aca atg tca gaa caa gaa Gly Phe Phe Ser Pro Lys Ser Arg Ala Arg Thr Met Ser Glu Gln Glu 261 266 271 276	1111
agg aaa cat gtt gat ggc tgt gca ata ttc ttc aag aca gaa aaa ttt Arg Lys His Val Asp Gly Cys Ala Ile Phe Phe Lys Thr Glu Lys Phe 277 282 287 292	1159
act ttg gtt cag aaa cac act gtt gaa ttt aat cag cta gcc atg gca Thr Leu Val Gln Lys His Thr Val Glu Phe Asn Gln Leu Ala Met Ala 293 298 303 308	1207

aat tct gag ggg tct gaa gct atg ctg aac aga gtc atg aca aaa gat	1255
Asn Ser Glu Gly Ser Glu Ala Met Leu Asn Arg Val Met Thr Lys Asp	
309 314 319 324	
aac att ggg gtt gca gta ctg cta gaa ctt cgg aag gaa tcg att gaa	1303
Asn Ile Gly Val Ala Val Leu Leu Glu Leu Arg Lys Glu Ser Ile Glu	
325 330 335 340	
atg ccg tct gga aag cca cat ctt gga aca gaa aaa caa ctt att ctt	1351
Met Pro Ser Gly Lys Pro His Leu Gly Thr Glu Lys Gln Leu Ile Leu	
341 346 351 356	
gtg gct aac gcc cac atg cat tgg gac cct gaa tac tct gat gtg aag	1399
Val Ala Asn Ala His Met His Trp Asp Pro Glu Tyr Ser Asp Val Lys	
357 362 367 372	
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Leu Val Gln Thr Met Met Phe Leu Ser Glu Val Lys Asn Ile Ile Asp	
373 378 383 388	
aaa gcc tct cgc aac ctc aaa tcc agt gtt ttg gga gaa ttt gga act	1495
Lys Ala Ser Arg Asn Leu Lys Ser Ser Val Leu Gly Glu Phe Gly Thr	
389 394 399 404	
att cca ctt gtg tta tgt gca gat ctt aat tct ttg cca gac tct ggt	1543
Ile Pro Leu Val Leu Cys Ala Asp Leu Asn Ser Leu Pro Asp Ser Gly	
405 410 415 420	
gtt gta gaa tat ttg agc aca ggt gga gta gaa aca aat cac aaa gac	1591
Val Val Glu Tyr Leu Ser Thr Gly Gly Val Glu Thr Asn His Lys Asp	
421 426 431 436	
ttt aag gag ttg agg tat aat gaa agt ctc aca aac ttc agc tgt cat	1639
Phe Lys Glu Leu Arg Tyr Asn Glu Ser Leu Thr Asn Phe Ser Cys His	
437 442 447 452	
ggg aag aat gga acc acc aat gga agg atc act cat ggt ttc aag tta	1687
Gly Lys Asn Gly Thr Thr Asn Gly Arg Ile Thr His Gly Phe Lys Leu	
453 458 463 468	
cag agt gcc tat gag agt ggc ctg atg cct tac acg aat tac aca ttt	1735
Gln Ser Ala Tyr Glu Ser Gly Leu Met Pro Tyr Thr Asn Tyr Thr Phe	
469 474 479 484	
gat ttc aag ggt ata ata gac tac att ttc tat tct aaa cct cag ctg	1783
Asp Phe Lys Gly Ile Ile Asp Tyr Ile Phe Tyr Ser Lys Pro Gln Leu	
485 490 495 500	
aac acc tta ggc atc ctg ggc cct ctg gac cac cac tgg ctg gtt gag	1831
Asn Thr Leu Gly Ile Leu Gly Pro Leu Asp His His Trp Leu Val Glu	
501 506 511 516	
aat aac atc agt ggc tgc ccg cac ccc ctc atc ccc tct gac cac ttc	1879
Asn Asn Ile Ser Gly Cys Pro His Pro Leu Ile Pro Ser Asp His Phe	
517 522 527 532	
tca ctt ttt gca caa ctg gag ctc tta ctg cct ttc ctg ccc caa gtc	1927

Ser Leu Phe Ala Gln Leu Glu Leu Leu Leu Pro Phe Leu Pro Gln Val
533 538 543 548

aac ggc atc cac ctt cct ggc agg agg tag t caagcacctt cagaggacag 1978
Asn Gly Ile His Leu Pro Gly Arg Arg *
549 554

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aggatttttg cttgcttaag aatgatttgg actttcaatc tgattatttg ataaggatat 2098

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Ala Arg Leu Asp Tyr Glu Leu Ile Gln Arg Phe Thr Leu Thr Ile Ile
4 9 14 19

gcc cgg gac ggg ggc ggc gag gag acc aca ggc cgg gtc agg atc aat 150
Ala Arg Asp Gly Gly Gly Glu Glu Thr Thr Gly Arg Val Arg Ile Asn
20 25 30 35

gtg ttg gat gtc aac gac aac gtg ccc acc ttc cag aag gat gcc tac 198
Val Leu Asp Val Asn Asp Asn Val Pro Thr Phe Gln Lys Asp Ala Tyr
36 41 46 51

gtg ggt gct ctg cgg gag aac gag cct tct gtc aca cag ctg gtg cgg 246
Val Gly Ala Leu Arg Glu Asn Glu Pro Ser Val Thr Gln Leu Val Arg
52 57 62 67

ctc cgg gca aca gat gaa gac tcc cct ccc aac aac cag atc acc tac 294
Leu Arg Ala Thr Asp Glu Asp Ser Pro Pro Asn Asn Gln Ile Thr Tyr
68 73 78 83

agc att gtc agt gca tct gcc ttt ggc agc tac ttc gac atc agc ctg 342
Ser Ile Val Ser Ala Ser Ala Phe Gly Ser Tyr Phe Asp Ile Ser Leu
84 89 94 99

tac gag ggc tat gga gtg atc agc gtc agt cgc ccc ctg gat tat gaa 390

Tyr Glu Gly Tyr Gly Val Ile Ser Val Ser Arg Pro Leu Asp Tyr Glu	
100 105 110 115	
cag ata tcc aat ggg ctg att tat ctg acg gtc atg gcc atg gat gct	438
Gln Ile Ser Asn Gly Leu Ile Tyr Leu Thr Val Met Ala Met Asp Ala	
116 121 126 131	
ggc aac ccc cct ctc aac agc acc gtc cct gtc acc atc gag gtg ttt	486
Gly Asn Pro Pro Leu Asn Ser Thr Val Pro Val Thr Ile Glu Val Phe	
132 137 142 147	
gat gag aat gac gac cct ccc acc ttc agc aag ccc gcc tac ttc gtc	534
Asp Glu Asn Asp Asp Pro Pro Thr Phe Ser Lys Pro Ala Tyr Phe Val	
148 153 158 163	
tcc gtg gtg gag aac atc atg gca gga gcc acg gtg ctg ttc ctg aat	582
Ser Val Val Glu Asn Ile Met Ala Gly Ala Thr Val Leu Phe Leu Asn	
164 169 174 179	
gcc aca gac ctg gac cgc tcc cgg gag tac ggc cag gag tcc atc atc	630
Ala Thr Asp Leu Asp Arg Ser Arg Glu Tyr Gly Gln Glu Ser Ile Ile	
180 185 190 195	
tac tcc ttg gaa ggc tcc acc cag ttt cgg atc aat gcc cgc tca ggg	678
Tyr Ser Leu Glu Gly Ser Thr Gln Phe Arg Ile Asn Ala Arg Ser Gly	
196 201 206 211	
gaa atc acc acc acg tct ctg ctt gac cga gag acc aag tct gaa tac	726
Glu Ile Thr Thr Thr Ser Leu Leu Asp Arg Glu Thr Lys Ser Glu Tyr	
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Ile Leu Ile Val Arg Ala Val Asp Gly Gly Val Gly His Asn Gln Lys	
228 233 238 243	
act ggc atc gcc acc gta aac atc acc ctc ctg gac atc aac gac aac	822
Thr Gly Ile Ala Thr Val Asn Ile Thr Leu Leu Asp Ile Asn Asp Asn	
244 249 254 259	
cac ccc acg tgg aag gac gca ccc tac tac atc aac ctg gtg gag atg	870
His Pro Thr Trp Lys Asp Ala Pro Tyr Tyr Ile Asn Leu Val Glu Met	
260 265 270 275	
acc cct cca gac tct gac gtg acc acg gtg gtg gct gtt gac cca gac	918
Thr Pro Pro Asp Ser Asp Val Thr Thr Val Val Ala Val Asp Pro Asp	
276 281 286 291	
ctg ggg gag aat ggc acc ctg gtg tac agc atc cag cca ccc aac aag	966
Leu Gly Glu Asn Gly Thr Leu Val Tyr Ser Ile Gln Pro Pro Asn Lys	
292 297 302 307	
ttc tac agc ctc aac agc acc acg ggc aag atc cgc acc acc cac gcc	1014
Phe Tyr Ser Leu Asn Ser Thr Thr Gly Lys Ile Arg Thr Thr His Ala	
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atg ctg gac cgg gag aac ccc gac ccc cat gag gcc gag ctg atg cgc	1062
Met Leu Asp Arg Glu Asn Pro Asp Pro His Glu Ala Glu Leu Met Arg	

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aaa atc gtc gtc tct gtt act gac tgt ggc agg ccc cct ctg aaa gcc				1110
Lys Ile Val Val Ser Val Thr Asp Cys Gly Arg Pro Pro Leu Lys Ala				
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acc agc agt gcc aca gtg ttt gtg aac ctc ttg gat ctc aat gac aat				1158
Thr Ser Ser Ala Thr Val Phe Val Asn Leu Leu Asp Leu Asn Asp Asn				
356	361	366	371	
gac ccc acc ttt cag aac ctg cct ttt gtg gcc gag gtg ctt gaa gcc				1206
Asp Pro Thr Phe Gln Asn Leu Pro Phe Val Ala Glu Val Leu Glu Gly				
372	377	382	387	
atc ccg gcg ggg gtc tcc atc tac caa gtg gtg gcc atc gac ctc gat				1254
Ile Pro Ala Gly Val Ser Ile Tyr Gln Val Val Ala Ile Asp Leu Asp				
388	393	398	403	
gag gcc ctg aac gcc ctg gtg tcc tac cgc atg ccg gtg gcc atg ccc				1302
Glu Gly Leu Asn Gly Leu Val Ser Tyr Arg Met Pro Val Gly Met Pro				
404	409	414	419	
cgc atg gac ttc ctc atc aac agc agc agc gcc gtg gtg gtc acc acc				1350
Arg Met Asp Phe Leu Ile Asn Ser Ser Ser Gly Val Val Val Thr Thr				
420	425	430	435	
acc gag ctg gac cgc gag cgc atc gcg gag tac cag ctg cgg gtg gtg				1398
Thr Glu Leu Asp Arg Glu Arg Ile Ala Glu Tyr Gln Leu Arg Val Val				
436	441	446	451	
gcc agt gat gca gcc acg ccc acc aag agc tcc acc agc acg ctc acc				1446
Ala Ser Asp Ala Gly Thr Pro Thr Lys Ser Ser Thr Ser Thr Leu Thr				
452	457	462	467	
atc cat gtg ctg gat gtg aac gac gag acg ccc acc ttc ttc ccg gcc				1494
Ile His Val Leu Asp Val Asn Asp Glu Thr Pro Thr Phe Phe Pro Ala				
468	473	478	483	
gtg tac aat gtg tct gtg tcc gag gac gtg cca cgc gag ttc cgg gtg				1542
Val Tyr Asn Val Ser Val Ser Glu Asp Val Pro Arg Glu Phe Arg Val				
484	489	494	499	
gtc tgg ctg aac tgc acg gac aac gac gtg gcc ctc aat gca gag ctc				1590
Val Trp Leu Asn Cys Thr Asp Asn Asp Val Gly Leu Asn Ala Glu Leu				
500	505	510	515	
agc tac ttc atc aca ggt gct gcc ccg gcc tcc acc cac ctg tgc agg				1638
Ser Tyr Phe Ile Thr Gly Ala Ala Pro Ala Ser Thr His Leu Cys Arg				
516	521	526	531	
cct cct ggg gcc ctg cct cca ccc ctc cca gat gga cag cca gac tag				1686
Pro Pro Gly Ala Leu Pro Pro Pro Leu Pro Asp Gly Gln Pro Asp *				
532	537	542	547	
gtgggggcag gtgaggggtgg aaaagaggtc agggctctac tgttgggctt tagcctctgg				1746
tggtgcctcc cgaggatttg ctccctggctc ttcccaaggg ctttgcagct ggatcactct				1806

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 ggccgagtgg gcgaagccca gcacatttcg ggggcggggg gcaggtgagg gtccccagat 180
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 Met Ser Arg Ala Leu
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 Trp Phe Gly Ser Ser Gln Arg Pro Ile Asp Arg Gln Arg Tyr Asp Glu
 6 11 16 21
 aac gag gac ttg tcg gac gtg gag gag atc gtc agc gtc cgc ggc ttc 509
 Asn Glu Asp Leu Ser Asp Val Glu Glu Ile Val Ser Val Arg Gly Phe
 22 27 32 37
 agc ctg gag gag aag ctt cgc agc cag ctg tac cag ggg gac ttc gtg 557
 Ser Leu Glu Glu Lys Leu Arg Ser Gln Leu Tyr Gln Gly Asp Phe Val
 38 43 48 53
 cac gcc atg gag ggc aaa gat ttc aac tat gag tac gta cag aga gaa 605
 His Ala Met Glu Gly Lys Asp Phe Asn Tyr Glu Tyr Val Gln Arg Glu
 54 59 64 69
 gct ctc agg gtt ccc ctg ata ttt cga gaa aag gat gga ctg gga att 653

294	299	304	309	
atc tac gag atc gag gac agg acg cgg gtg cag ccc aaa ttc cgt tac				1373
Ile Tyr Glu Ile Glu Asp Arg Thr Arg Val Gln Pro Lys Phe Arg Tyr				
310	315	320	325	
ccc ttc tac tat gag atg tgc tgg tat gtc ctg gag aga tac gtg tac				1421
Pro Phe Tyr Tyr Glu Met Cys Trp Tyr Val Leu Glu Arg Tyr Val Tyr				
326	331	336	341	
tgt gtg acc cag cgc tcc cac ctc act cag gaa tac cag agg gag tgc				1469
Cys Val Thr Gln Arg Ser His Leu Thr Gln Glu Tyr Gln Arg Glu Ser				
342	347	352	357	
atg ctt att gat gcc ccg agg aag ccc agc ata gac ggc ttc tct tgc				1517
Met Leu Ile Asp Ala Pro Arg Lys Pro Ser Ile Asp Gly Phe Ser Ser				
358	363	368	373	
gat tcc tgg ctg gag atg gag gag gag gcc tgt gat cag cag cct cag				1565
Asp Ser Trp Leu Glu Met Glu Glu Glu Ala Cys Asp Gln Gln Pro Gln				
374	379	384	389	
gag gag gag gag aag gac gag gag ggc gag ggc agg gac agg gca ccc				1613
Glu Glu Glu Glu Lys Asp Glu Glu Gly Glu Gly Arg Asp Arg Ala Pro				
390	395	400	405	
aaa ccg ccc acc gat ggc tcc act tca ccc acc agc acg ccc tct gag				1661
Lys Pro Pro Thr Asp Gly Ser Thr Ser Pro Thr Ser Thr Pro Ser Glu				
406	411	416	421	
gac cag gag gcc ctc ggg aag aag ccc aaa gca cct gcc ctg cga ttc				1709
Asp Gln Glu Ala Leu Gly Lys Lys Pro Lys Ala Pro Ala Leu Arg Phe				
422	427	432	437	
ctc aaa agg act ttg tct aat gag tgc gag gaa agt gtg aag tcc acc				1757
Leu Lys Arg Thr Leu Ser Asn Glu Ser Glu Glu Ser Val Lys Ser Thr				
438	443	448	453	
aca ttg gcc gta gac tac ccc aag acc ccc acc ggc tct ccc gcc acg				1805
Thr Leu Ala Val Asp Tyr Pro Lys Thr Pro Thr Gly Ser Pro Ala Thr				
454	459	464	469	
gag gtc tct gcc aaa tgg acc cat ctc act gag ttt gaa ctg aag ggc				1853
Glu Val Ser Ala Lys Trp Thr His Leu Thr Glu Phe Glu Leu Lys Gly				
470	475	480	485	
ctg aaa gct ctg gtg gag aaa ctg gaa tcc ctc ccg gag aac aag aag				1901
Leu Lys Ala Leu Val Glu Lys Leu Glu Ser Leu Pro Glu Asn Lys Lys				
486	491	496	501	
tgt gtc ccc gag ggc atc gag gac ccc cag gca ctc ctg gag ggt gtg				1949
Cys Val Pro Glu Gly Ile Glu Asp Pro Gln Ala Leu Leu Glu Gly Val				
502	507	512	517	
aag aac gtc ctg aag gag cac gca gat gat gac cct agt ctg gcc atc				1997
Lys Asn Val Leu Lys Glu His Ala Asp Asp Asp Pro Ser Leu Ala Ile				
518	523	528	533	

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Thr Gly Val Pro Val Val Thr Trp Pro Lys Lys Thr Pro Lys Asn Arg	
534 539 544 549	
gct gtg ggt cgg ccc aag ggg aag ctg ggc ccg gcc tcc gcg gtg aag	2093
Ala Val Gly Arg Pro Lys Gly Lys Leu Gly Pro Ala Ser Ala Val Lys	
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ttg gcc gcc aac cgg aca acg gca gga gct cgg cgg cgc cgg acg cga	2141
Leu Ala Ala Asn Arg Thr Thr Ala Gly Ala Arg Arg Arg Arg Thr Arg	
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tgc cgc aag tgc gag gcc tgc ctg cgg acc gag tgc gga gag tgc cac	2189
Cys Arg Lys Cys Glu Ala Cys Leu Arg Thr Glu Cys Gly Glu Cys His	
582 587 592 597	
ttc tgc aag gac atg aag aag ttc ggg ggc ccc ggg cgc atg aag cag	2237
Phe Cys Lys Asp Met Lys Lys Phe Gly Gly Pro Gly Arg Met Lys Gln	
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agc tgc atc atg cgg cag tgc atc gcg cca gtg ctg ccc cac acc gcc	2285
Ser Cys Ile Met Arg Gln Cys Ile Ala Pro Val Leu Pro His Thr Ala	
614 619 624 629	
gtg tgc ctt gtg tgt ggc gag gcg ggg aag gaa gac acg gtg gaa gag	2333
Val Cys Leu Val Cys Gly Glu Ala Gly Lys Glu Asp Thr Val Glu Glu	
630 635 640 645	
gag gaa ggc aag ttt aac ctc atg ctc atg gag tgc tcc atc tgc aat	2381
Glu Glu Gly Lys Phe Asn Leu Met Leu Met Glu Cys Ser Ile Cys Asn	
646 651 656 661	
gaa atc atc cac cct gga tgc ctt aag gtg agt ggc cca gtg ggg aca	2429
Glu Ile Ile His Pro Gly Cys Leu Lys Val Ser Gly Pro Val Gly Thr	
662 667 672 677	
ggg ggt gct gac gct ctg ggg cag gta ggg ttg ctg gag atg ctg gtg	2477
Gly Gly Ala Asp Ala Leu Gly Gln Val Gly Leu Leu Glu Met Leu Val	
678 683 688 693	
aga tgg tgg gat gca ggt cgt gca gtg aat tcc tgg agg acc cct gag	2525
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Ser Gly *	
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Met Asn Asn Ser	
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Thr Thr Thr Thr Ser Ser Asn Ser Lys Asp Cys Gly Gly Pro Ala	
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tcc agt ggg gct ggt gct acc gca gcc tta gct gat ggc cta aaa ttt	212
Ser Ser Gly Ala Gly Ala Thr Ala Ala Leu Ala Asp Gly Leu Lys Phe	
21 26 31 36	
gct tct gtt cag gcc tct gct ccc cag ggg aat tca cac aaa gag acc	260
Ala Ser Val Gln Ala Ser Ala Pro Gln Gly Asn Ser His Lys Glu Thr	
37 42 47 52	
agc aaa tca aaa gtg aaa agg agt aaa act tct aag gat gct aat aaa	308
Ser Lys Ser Lys Val Lys Arg Ser Lys Thr Ser Lys Asp Ala Asn Lys	
53 58 63 68	
tct ctg cct tct gct gcc ttg tat ggg att ccc gag atc agc agc act	356
Ser Leu Pro Ser Ala Ala Leu Tyr Gly Ile Pro Glu Ile Ser Ser Thr	
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Gly Lys Arg Gln Glu Val Gln Gly Arg Pro Gly Glu Ala Thr Gly Met	
85 90 95 100	
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Asn Ser Ala Leu Gly Gln Ser Val Ser Ser Gly Gly Ser Gly Asn Pro	
101 106 111 116	
aac agc aat agt acc agc acc agc acc tct gcc gcc acc gcg ggg gca	500
Asn Ser Asn Ser Thr Ser Thr Ser Thr Ser Ala Ala Thr Ala Gly Ala	
117 122 127 132	
ggc tcc tgt ggg aaa agc aaa gag gag aag cca ggt aaa agc cag agc	548
Gly Ser Cys Gly Lys Ser Lys Glu Glu Lys Pro Gly Lys Ser Gln Ser	
133 138 143 148	
agc cga ggc gcc aag cgg gat aag gat gcg ggg aaa tcc agg aag gac	596
Ser Arg Gly Ala Lys Arg Asp Lys Asp Ala Gly Lys Ser Arg Lys Asp	
149 154 159 164	
aag cac gac ctg ctt cag ggc cac cag aat ggc agt ggc agc cag gcc	644
Lys His Asp Leu Leu Gln Gly His Gln Asn Gly Ser Gly Ser Gln Ala	
165 170 175 180	
cct tcc ggg ggg cac ctc tat ggc ttt ggg gcc aag agc aat gga ggt	692

405	410	415	420	
agg cgg ggc agc ctc aat gcc agc gga cga agg aca ccc cca aat tgt				1412
Arg Arg Gly Ser Leu Asn Ala Ser Gly Arg Arg Thr Pro Pro Asn Cys				
421	426	431	436	
gct gct gag gat atc aaa gcc agc cct tcc tcc acc aaa aaa aaa aaa				1460
Ala Ala Glu Asp Ile Lys Ala Ser Pro Ser Ser Thr Lys Lys Lys Lys				
437	442	447	452	
aac aag cct cca atg gag ctg gac ctg aac tcc agc tct gag gac aat				1508
Asn Lys Pro Pro Met Glu Leu Asp Leu Asn Ser Ser Ser Glu Asp Asn				
453	458	463	468	
aag cct gga aag cgt gtc cgc aca aat tcc aga agc act ccc act acc				1556
Lys Pro Gly Lys Arg Val Arg Thr Asn Ser Arg Ser Thr Pro Thr Thr				
469	474	479	484	
cct caa ggg aaa cca gag act act ttt ttg gac caa ggc tgc tct tct				1604
Pro Gln Gly Lys Pro Glu Thr Thr Phe Leu Asp Gln Gly Cys Ser Ser				
485	490	495	500	
cca gtg tta atc gac tgt ccc cac cca aac tgc aac aaa aag tac aag				1652
Pro Val Leu Ile Asp Cys Pro His Pro Asn Cys Asn Lys Lys Tyr Lys				
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cac att aac ggc ctg agg tac cac cag gct cat gca cac tta gac cca				1700
His Ile Asn Gly Leu Arg Tyr His Gln Ala His Ala His Leu Asp Pro				
517	522	527	532	
gaa aac aag ctg gag ttc gag cct gac agt gag gac aag atc tcg gac				1748
Glu Asn Lys Leu Glu Phe Glu Pro Asp Ser Glu Asp Lys Ile Ser Asp				
533	538	543	548	
tgt gag gaa gga ttg agt aat gtg gca ctt gaa tgc agt gag cca agc				1796
Cys Glu Glu Gly Leu Ser Asn Val Ala Leu Glu Cys Ser Glu Pro Ser				
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aca agt gta tct gct tat gac cag ttg aag gca ccg gca tcc cct ggt				1844
Thr Ser Val Ser Ala Tyr Asp Gln Leu Lys Ala Pro Ala Ser Pro Gly				
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gct gga aac cca cct ggg acc cca aag gga aag aga gag ctg atg agc				1892
Ala Gly Asn Pro Pro Gly Thr Pro Lys Gly Lys Arg Glu Leu Met Ser				
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aat ggc cca ggt tcc att att ggt gct aaa gct ggg aag aat tct ggc				1940
Asn Gly Pro Gly Ser Ile Ile Gly Ala Lys Ala Gly Lys Asn Ser Gly				
597	602	607	612	
aaa aag aag ggc ctt aac aat gaa ctg aac aac ctt cca gta atc tcc				1988
Lys Lys Lys Gly Leu Asn Asn Glu Leu Asn Asn Leu Pro Val Ile Ser				
613	618	623	628	
aac atg acg gct gcg tta gac agt tgc tcg gca gca gac ggc agt ttg				2036
Asn Met Thr Ala Ala Leu Asp Ser Cys Ser Ala Ala Asp Gly Ser Leu				
629	634	639	644	

gct gct gag atg cct aaa ctg gaa gca gaa gga tta att gac aag aaa Ala Ala Glu Met Pro Lys Leu Glu Ala Glu Gly Leu Ile Asp Lys Lys 645 650 655 660	2084
aat tta gga gat aaa gaa aag ggc aaa aaa gct aac aac tgc aaa acg Asn Leu Gly Asp Lys Glu Lys Gly Lys Lys Ala Asn Asn Cys Lys Thr 661 666 671 676	2132
gac aaa aac ctc tct aaa ctg aaa agt gcc cgg ccc att gcc cct gcc Asp Lys Asn Leu Ser Lys Leu Lys Ser Ala Arg Pro Ile Ala Pro Ala 677 682 687 692	2180
cca gcc ccc act ccc ccg cag cta atc gct ata ccc act gca acc ttt Pro Ala Pro Thr Pro Pro Gln Leu Ile Ala Ile Pro Thr Ala Thr Phe 693 698 703 708	2228
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cca aag ccc aca att atg gga gag ccc atc acc gtg aac cca gct ctg Pro Lys Pro Thr Ile Met Gly Glu Pro Ile Thr Val Asn Pro Ala Leu 741 746 751 756	2372
gtg tca ctc aaa gac aaa aag aaa aag gag aag cga aag cta aag gac Val Ser Leu Lys Asp Lys Lys Lys Lys Glu Lys Arg Lys Leu Lys Asp 757 762 767 772	2420
aaa gaa ggg aaa gag acg gga agc cca aaa atg gat gcc aag ctg ggg Lys Glu Gly Lys Glu Thr Gly Ser Pro Lys Met Asp Ala Lys Leu Gly 773 778 783 788	2468
aaa cta gag gac tcc aag ggg gcc agc aaa gat tta cct ggg cat ttt Lys Leu Glu Asp Ser Lys Gly Ala Ser Lys Asp Leu Pro Gly His Phe 789 794 799 804	2516
tta aag gat cat ctc aac aag aat gaa ggg ctg gca aat gga ctg tcg Leu Lys Asp His Leu Asn Lys Asn Glu Gly Leu Ala Asn Gly Leu Ser 805 810 815 820	2564
gag tct cag gag agc cgc atg gcc agt atc aaa gct gag gcc gat aag Glu Ser Gln Glu Ser Arg Met Ala Ser Ile Lys Ala Glu Ala Asp Lys 821 826 831 836	2612
gtt tac act ttc aca gac aac gct ccc agc cct tcc ata ggg agc gcc Val Tyr Thr Phe Thr Asp Asn Ala Pro Ser Pro Ser Ile Gly Ser Ala 837 842 847 852	2660
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ccc ctg cat gac ctt gtc ctc cac acc aac tac acc gcc aca gtg cgt	12864
Pro Leu His Asp Leu Val Leu His Thr Asn Tyr Thr Ala Thr Val Arg	
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ggc ctg cgg ggc ccc aac ctc act tcc cca gcc agc atc acc ttc acc	12912
Gly Leu Arg Gly Pro Asn Leu Thr Ser Pro Ala Ser Ile Thr Phe Thr	
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aca ggg cta gag gcc cct cgg gac ttg gag gcc aag gaa gtg acc ccc	12960
Thr Gly Leu Glu Ala Pro Arg Asp Leu Glu Ala Lys Glu Val Thr Pro	
4305 4310 4315 4320	
cgc acc gcc ctg ctc act tgg act gag ccc cca gtc cgg ccc gca ggc	13008
Arg Thr Ala Leu Leu Thr Trp Thr Glu Pro Pro Val Arg Pro Ala Gly	
4321 4326 4331 4336	
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Tyr Leu Leu Ser Phe His Thr Pro Gly Gly Gln Asn Gln Glu Ile Leu	
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ctc cca gga ggg atc aca tct cac cag ctc ctt ggc ctc ttt ccc tcc	13104
Leu Pro Gly Gly Ile Thr Ser His Gln Leu Leu Gly Leu Phe Pro Ser	
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Thr Ser Tyr Asn Ala Arg Leu Gln Ala Met Trp Gly Gln Ser Leu Leu	
4369 4374 4379 4384	
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Pro Pro Val Ser Thr Ser Phe Thr Thr Gly Gly Leu Arg Ile Pro Phe	
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Thr Ser Thr Ile Phe Leu Asn Gly Asn Arg Glu Arg Pro Leu Asn Val	
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Phe Cys Asp Met Glu Thr Asp Gly Gly Gly Trp Leu Val Phe Gln Arg	
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cgc atg gat gga cag aca gac ttc tgg agg gac tgg gag gac tat gcc	13392
Arg Met Asp Gly Gln Thr Asp Phe Trp Arg Asp Trp Glu Asp Tyr Ala	
4449 4454 4459 4464	
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His Gly Phe Gly Asn Ile Ser Gly Glu Phe Trp Leu Gly Asn Glu Ala	
4465 4470 4475 4480	
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Glu Thr Lys Gln Lys Asn Met Pro Ser Ala Thr Ile Ser Lys Ala Pro	
tct act ccg gag cct aac aaa aac cat .tct aaa cta ggg cca tca gtg	3476
Ser Thr Pro Glu Pro Asn Lys Asn His Ser Lys Leu Gly Pro Ser Val	
cct aat aaa act gag gag aca ggt aaa tcg cag ctt ctc tcc aat cac	3524
Pro Asn Lys Thr Glu Glu Thr Gly Lys Ser Gln Leu Leu Ser Asn His	
cag cag cag ctt cag gcc gac agc ttc aaa gct aag cag atg gaa aac	3572
Gln Gln Gln Leu Gln Ala Asp Ser Phe Lys Ala Lys Gln Met Glu Asn	
cac cag ctt att aag gag gct gta gaa atg aag tct gtc atg gac tct	3620
His Gln Leu Ile Lys Glu Ala Val Glu Met Lys Ser Val Met Asp Ser	
atg aag cag aca ggt gta gac cca acc tcg aga ttt aaa caa gac cca	3668
Met Lys Gln Thr Gly Val Asp Pro Thr Ser Arg Phe Lys Gln Asp Pro	
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Asp Ser Arg Thr Trp His His Tyr Val Tyr Gln Pro Lys Tyr Leu Asp	
cag caa aag tca gaa gaa ctt gat aga gag aag aaa tta aaa gag gat	3764
Gln Gln Lys Ser Glu Glu Leu Asp Arg Glu Lys Lys Leu Lys Glu Asp	
agt ccg agg aaa act cct aat aaa gag agt ggt gtg ccc agc ctt cct	3812
Ser Pro Arg Lys Thr Pro Asn Lys Glu Ser Gly Val Pro Ser Leu Pro	
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Val Ser Leu Thr Ser Ile Lys Glu Glu Pro Lys Glu Ala Lys His Pro	
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Asp Ser Gln Ser Met Glu Glu Ser Lys Leu Lys Asn Asp Asp Arg Lys	
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Thr Pro Val Asn Trp Lys Asp Ser Arg Gly Thr Arg Val Ala Val Ser	
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Ser Pro Met Ser Gln His Gln Ser Tyr Ile Gln Tyr Leu His Ala Tyr	
cct tac cca cag atg tac gac ccc agc cat cct gca tac cgg gct gtt	4052
Pro Tyr Pro Gln Met Tyr Asp Pro Ser His Pro Ala Tyr Arg Ala Val	
tct ccc gtc cta atg cac agt tat cct ggt acg tgt tgt cgg ttc tga	4100
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1317

1322

1327

1332

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 Leu Ile Glu Gly Val Gly Asn Glu Val Met Val Val Ala Gly Val Val
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 Val Leu Ile Leu Ala Leu Val Leu Ala Trp Leu Ser Thr Tyr Val Ala
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 Asp Ser Gly Ser Asn Gln Leu Leu Gly Ala Ile Val Ser Ala Gly Asp
 40 45 50 55
 aca tcc gtc ctc cac ctg ggg cat gtg gac cac ctg gtg gca ggc caa 726
 Thr Ser Val Leu His Leu Gly His Val Asp His Leu Val Ala Gly Gln
 56 61 66 71
 ggc aac ccc gag cca act gaa ctc ccc cat cca tca gag ggt aat gat 774
 Gly Asn Pro Glu Pro Thr Glu Leu Pro His Pro Ser Glu Gly Asn Asp
 72 / 77 82 87
 gag aag gct gaa gag gcg ggt gaa ggt cgg gga gac tcc act ggg gag 822

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56	61	66	71	
cag agt cct gaa ttt gaa att gag gag gag gaa gaa atg ttg tca tcc				352
Gln Ser Pro Glu Phe Glu Ile Glu Glu Glu Glu Glu Met Leu Ser Ser				
72	77	82	87	
gtc ata cca gat tcc agg aga gaa aat gaa ctt ccc gat ttc ccc cac				400
Val Ile Pro Asp Ser Arg Arg Glu Asn Glu Leu Pro Asp Phe Pro His				
88	93	98	103	
att gat gag ttt ttt acc ctt aac tca aca cca tct aga tct gca tat				448
Ile Asp Glu Phe Phe Thr Leu Asn Ser Thr Pro Ser Arg Ser Ala Tyr				
104	109	114	119	
gat gag cct cat ttg ctc gta aat att gag aaa cag aaa cta gag ttg				496
Asp Glu Pro His Leu Leu Val Asn Ile Glu Lys Gln Lys Leu Glu Leu				
120	125	130	135	
gaa aaa cga cga ctg gat atc gag gcc gaa agg ctg cag gta gaa aag				544
Glu Lys Arg Arg Leu Asp Ile Glu Ala Glu Arg Leu Gln Val Glu Lys				
136	141	146	151	
gaa cgc cta caa atc gag aaa gag agg ctg cgg cat tta gac atg gaa				592
Glu Arg Leu Gln Ile Glu Lys Glu Arg Leu Arg His Leu Asp Met Glu				
152	157	162	167	
cat gag cgg ctt cag cta gag aag gag cgg ctg cag att gaa aga gaa				640
His Glu Arg Leu Gln Leu Glu Lys Glu Arg Leu Gln Ile Glu Arg Glu				
168	173	178	183	
aag ttg agg tta cag ata gtc aat tca gag aaa ccg tcc ttg gaa aat				688
Lys Leu Arg Leu Gln Ile Val Asn Ser Glu Lys Pro Ser Leu Glu Asn				
184	189	194	199	
gaa ctt ggt caa gga gaa aaa tcc atg ctt caa cca cag gac ata gaa				736
Glu Leu Gly Gln Gly Glu Lys Ser Met Leu Gln Pro Gln Asp Ile Glu				
200	205	210	215	
aca gag aag tta aaa ctt gag cga gaa cgc ttg caa ctg gaa aag gat				784
Thr Glu Lys Leu Lys Leu Glu Arg Glu Arg Leu Gln Leu Glu Lys Asp				
216	221	226	231	
agg ctg cag ttt ttg aag ttt gaa tct gag aag ctg cag att gaa aag				832
Arg Leu Gln Phe Leu Lys Phe Glu Ser Glu Lys Leu Gln Ile Glu Lys				
232	237	242	247	
gaa cgc tta cag gta gag aaa gac aga ctt cga att cag aaa gaa gga				880
Glu Arg Leu Gln Val Glu Lys Asp Arg Leu Arg Ile Gln Lys Glu Gly				
248	253	258	263	
cac ttg cag tga ttt ttccaggctt ccatttagca aatgtttgaa aactctagat				935
His Leu Gln *				
264				

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caggcccggc agccgcc   atg gtg gcc aag gat tac ccc ttc tac ctc acg      230
                      Met Val Ala Lys Asp Tyr Pro Phe Tyr Leu Thr
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gtc aag aga gcg aac tgc agc ctg gag cta cct ccg gcc agc ggt ccg      278
Val Lys Arg Ala Asn Cys Ser Leu Glu Leu Pro Pro Ala Ser Gly Pro
  12                      17                22                27

gcc aag gac gct gag gag cct agt aat aaa cgg gtc aaa ccc ctt tcc      326
Ala Lys Asp Ala Glu Glu Pro Ser Asn Lys Arg Val Lys Pro Leu Ser
  28                      33                38                43

cga gtc acg tcg cta gca aac ctc atc ccg ccc gtg aag gcc acg cca      374
Arg Val Thr Ser Leu Ala Asn Leu Ile Pro Pro Val Lys Ala Thr Pro
  44                      49                54                59

tta aag cgc ttc agt caa acc ctg cag cgc tcc att agc ttc cgc agt      422
Leu Lys Arg Phe Ser Gln Thr Leu Gln Arg Ser Ile Ser Phe Arg Ser
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gag agc cgc cct gac atc ctc gcc ccc cga ccc tgg tcc aga aat gcc      470
Glu Ser Arg Pro Asp Ile Leu Ala Pro Arg Pro Trp Ser Arg Asn Ala
  76                      81                86                91

gcc ccc tcg agc acg aaa cgg aga gat agc aag ctg tgg agt gag acc      518
Ala Pro Ser Ser Thr Lys Arg Arg Asp Ser Lys Leu Trp Ser Glu Thr
  92                      97                102               107

ttc gat gtg tgc gtc aat cag atg ctt aca tcc aag gaa atc aaa cgt      566
Phe Asp Val Cys Val Asn Gln Met Leu Thr Ser Lys Glu Ile Lys Arg
  108                     113                118                123

cag gag gcg atc ttt gag ctt tcc caa gga gaa gaa gac ttg ata gaa      614
Gln Glu Ala Ile Phe Glu Leu Ser Gln Gly Glu Glu Asp Leu Ile Glu
  124                     129                134                139

gac ttg aaa tta gca aaa aag gcc tat cat gac ccc atg ctg aaa ctc      662
Asp Leu Lys Leu Ala Lys Lys Ala Tyr His Asp Pro Met Leu Lys Leu
  140                     145                150                155

tcc ata atg aca gaa caa gag ttg aat caa att ttt gga aca ctg gac      710
Ser Ile Met Thr Glu Gln Glu Leu Asn Gln Ile Phe Gly Thr Leu Asp

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172	177	182	187	
agg aag cct gat ggc tgc act gaa cat gtt	ggc ccc atc ctc gtg ggc	806		
Arg Lys Pro Asp Gly Ser Thr Glu His Val	Gly Pro Ile Leu Val Gly			
188	193	198	203	
tgg ctc cct tgc ctc agc tcc tat gat agc	tac tgc agc aat caa gta	854		
Trp Leu Pro Cys Leu Ser Ser Tyr Asp Ser	Tyr Cys Ser Asn Gln Val			
204	209	214	219	
gcc gcc aaa gct ctg ctg gac cac aaa aag	caa gat cac cga gtc cag	902		
Ala Ala Lys Ala Leu Leu Asp His Lys Lys	Gln Asp His Arg Val Gln			
220	225	230	235	
gat ttc cta cag cga tgt tta gaa tcc ccc	ttt agc cgc aaa cta gat	950		
Asp Phe Leu Gln Arg Cys Leu Glu Ser Pro	Phe Ser Arg Lys Leu Asp			
236	241	246	251	
ctc tgg aat ttc ctc gat att cca aga agc	cgc ctg gta aaa tac cct	998		
Leu Trp Asn Phe Leu Asp Ile Pro Arg Ser	Arg Leu Val Lys Tyr Pro			
252	257	262	267	
ctg ctt ctc cga gaa atc ttg agg cac aca	cca aat gat aat cca gat	1046		
Leu Leu Leu Arg Glu Ile Leu Arg His Thr	Pro Asn Asp Asn Pro Asp			
268	273	278	283	
cag cag cac ttg gaa gaa gct ata aat atc	att cag gga att gtg gca	1094		
Gln Gln His Leu Glu Glu Ala Ile Asn Ile	Ile Gln Gly Ile Val Ala			
284	289	294	299	
gaa atc aac acc aag act ggt gaa tct gaa	tgc cgc tat tat aaa gag	1142		
Glu Ile Asn Thr Lys Thr Gly Glu Ser Glu	Cys Arg Tyr Tyr Lys Glu			
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cgg ctt ctt tac ttg gaa gaa ggc cag aaa	gac tcc ctg atc gac agc	1190		
Arg Leu Leu Tyr Leu Glu Glu Gly Gln Lys	Asp Ser Leu Ile Asp Ser			
316	321	326	331	
tct cga gtc ttg tgt tgt cat ggt gaa ctg	aag aac aat cgg ggc gtg	1238		
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332	337	342	347	
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348	353	358	363	
gtc acc cac aat gag cag ctt tgc tac cag	ctg tac cgt cag cca atc	1334		
Val Thr His Asn Glu Gln Leu Cys Tyr Gln	Leu Tyr Arg Gln Pro Ile			
364	369	374	379	
ccc gtg aaa gac ctc ctg ctg gaa/gac	ctc cag gat gga gaa gtg agg	1382		
Pro Val Lys Asp Leu Leu Leu Glu Asp	Leu Gln Asp Gly Glu Val Arg			
380	385	390	395	

<222> (46) .. (1437)

<400> 85

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	Met Val Cys	
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aag cgg aag ggg gcc ggt gtt ctt ttc tgc acc ccc tgc aag cag ccg		102
Lys Arg Lys Gly Ala Gly Val Leu Phe Cys Thr Pro Cys Lys Gln Pro		
4 9 14 19		
ctc tgc cct ccg ccc tct tct ccc acc tgc gaa ggt gcc ccc acc gaa		150
Leu Cys Pro Pro Pro Ser Ser Pro Thr Cys Glu Gly Ala Pro Thr Glu		
20 25 30 35		
gct ggc ggg gac gct gtc cga gcc ggg ggc acc gcc ccc ttg tcc gac		198
Ala Gly Gly Asp Ala Val Arg Ala Gly Gly Thr Ala Pro Leu Ser Asp		
36 41 46 51		
cag cag cag cat gaa tgt ggc gac tcg gac tgt cgg gag tcc ccc gaa		246
Gln Gln Gln His Glu Cys Gly Asp Ser Asp Cys Arg Glu Ser Pro Glu		
52 57 62 67		
aac ccc tgc gac tgt cac agg gag ccg ccc ccc gaa acc cca gac atc		294
Asn Pro Cys Asp Cys His Arg Glu Pro Pro Pro Glu Thr Pro Asp Ile		
68 73 78 83		
aac cag ctg ccg ccg tcc atc ctg ctc aag ata ttt tcc aat ttg tca		342
Asn Gln Leu Pro Pro Ser Ile Leu Leu Lys Ile Phe Ser Asn Leu Ser		
84 89 94 99		
ctg gat gag cgt tgc ctt tcc gca tca ttg gtt tgc aag tac tgg cgt		390
Leu Asp Glu Arg Cys Leu Ser Ala Ser Leu Val Cys Lys Tyr Trp Arg		
100 105 110 115		
gac ctt tgt tta gac ttc cag ttt tgg aag cag ctg gat ctt agt agt		438
Asp Leu Cys Leu Asp Phe Gln Phe Trp Lys Gln Leu Asp Leu Ser Ser		
116 121 126 131		
cgt cag cag gtc act gat gaa ttg ttg gaa aaa att gca tca aga agt		486
Arg Gln Gln Val Thr Asp Glu Leu Leu Glu Lys Ile Ala Ser Arg Ser		
132 137 142 147		
cag aat ata att gaa atc aac att tct gat tgt cgc agt atg tct gat		534
Gln Asn Ile Ile Glu Ile Asn Ile Ser Asp Cys Arg Ser Met Ser Asp		
148 153 158 163		
aat ggc gta tgt gtt tta gca ttt aaa tgt cct gga ctt ctt agg tat		582
Asn Gly Val Cys Val Leu Ala Phe Lys Cys Pro Gly Leu Leu Arg Tyr		
164 169 174 179		
aca gcc tac agg tgt aaa cag ctt tct gac acc tct att att gcg gtt		630
Thr Ala Tyr Arg Cys Lys Gln Leu Ser Asp Thr Ser Ile Ile Ala Val		
180 185 190 195		
gcc tct cac tgt cct tta ctt cag aaa gtg cat gta ggc aac cag gac		678
Ala Ser His Cys Pro Leu Leu Gln Lys Val His Val Gly Asn Gln Asp		

196	201	206	211	
aaa ctc act gat gaa gga ctc aag cag ctg ggc tca aaa tgc aga gaa Lys Leu Thr Asp Glu Gly Leu Lys Gln Leu Gly Ser Lys Cys Arg Glu 212 217 222 227				726
ctc aaa gat att cat ttc ggc cag tgt tac aag atc tca gat gaa ggc Leu Lys Asp Ile His Phe Gly Gln Cys Tyr Lys Ile Ser Asp Glu Gly 228 233 238 243				774
atg atc gtc ata gct aag ggc tgt ctg aaa tta caa agg ata tac atg Met Ile Val Ile Ala Lys Gly Cys Leu Lys Leu Gln Arg Ile Tyr Met 244 249 254 259				822
cag gaa aac aaa tta gtg aca gat cag tca gtg aaa gca ttt gct gaa Gln Glu Asn Lys Leu Val Thr Asp Gln Ser Val Lys Ala Phe Ala Glu 260 265 270 275				870
cac tgt cct gag ctt caa tat gta ggc ttc atg ggt tgt tca gtc act His Cys Pro Glu Leu Gln Tyr Val Gly Phe Met Gly Cys Ser Val Thr 276 281 286 291				918
tct aaa gga gtc att cac cta acc aag cta aga aac ctt tcc agc ttg Ser Lys Gly Val Ile His Leu Thr Lys Leu Arg Asn Leu Ser Ser Leu 292 297 302 307				966
gac cta cgt cat atc act gaa ctg gat aat gaa acc gtg atg gaa att Asp Leu Arg His Ile Thr Glu Leu Asp Asn Glu Thr Val Met Glu Ile 308 313 318 323				1014
gtc aag agg tgc aaa aat ctt agc tct ctc aat ctc tgt ctg aac tgg Val Lys Arg Cys Lys Asn Leu Ser Ser Leu Asn Leu Cys Leu Asn Trp 324 329 334 339				1062
atc ata aat gac agg tgt gtg gag gtc att gca aag gaa gga caa aac Ile Ile Asn Asp Arg Cys Val Glu Val Ile Ala Lys Glu Gly Gln Asn 340 345 350 355				1110
ctg aaa gag cta tat ttg gtg tcc tgt aaa atc aca gat tat gca ctg Leu Lys Glu Leu Tyr Leu Val Ser Cys Lys Ile Thr Asp Tyr Ala Leu 356 361 366 371				1158
ata gcc att ggg cga tac agc atg aca ata gag act gtg gat gtc gga Ile Ala Ile Gly Arg Tyr Ser Met Thr Ile Glu Thr Val Asp Val Gly 372 377 382 387				1206
tgg tgt aaa gaa atc aca gac caa gga gcc acc ctg att gca cag agc Trp Cys Lys Glu Ile Thr Asp Gln Gly Ala Thr Leu Ile Ala Gln Ser 388 393 398 403				1254
agc aag tct ctg aga tat ttg ggg ctg atg aga tgt gat aaa gtc aac Ser Lys Ser Leu Arg Tyr Leu Gly Leu Met Arg Cys Asp Lys Val Asn 404 409 414 419				1302
gaa gtg acg gtg gaa cag ctg gtg cag cag tac ccc cac atc acc ttc Glu Val Thr Val Glu Gln Leu Val Gln Gln Tyr Pro His Ile Thr Phe 420 425 430 435				1350

agc acc gtc ctg cag gac tgc aag agg acc ttg gag aga gcc tat cag 1398
 Ser Thr Val Leu Gln Asp Cys Lys Arg Thr Leu Glu Arg Ala Tyr Gln
 436 441 446 451

atg ggc tgg acc ccc aac atg tct gcc gcc tcc tcc tag cgctcctgcc 1447
 Met Gly Trp Thr Pro Asn Met Ser Ala Ala Ser Ser *
 452 457 462

tcgcctagtc cactgggatac attcagcaga gcagaggaga attgtacatt tggggagctg 1507

atctctcgga aggggttttaa ctggcacctg tctgtgtgtg ttc 1550

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 <213> Homo sapiens

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 <222> (264) .. (3128)

<400> 86

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tgtgacgtaa ccgcccactc ggaagaccgg tcccgcctcg gaggctctgc agtcgcgcct 120

ggggtcaggg ccgggggcga atgtggctcg cggtctaggc ctccctgggt tggaaaaaga 180

ctatgttagc aagtgtcacg ccatgctttt gccaaacttt caattaaagg ttgacattcc 240

tgcataagca tttctctgtg aaa atg tcc ttg cct ctt aca gag gag cag 290
 Met Ser Leu Pro Leu Thr Glu Glu Gln
 1 5

agg aaa aag att gaa gag aat cga caa aag gct ctg gcc cgc aga gct 338
 Arg Lys Lys Ile Glu Glu Asn Arg Gln Lys Ala Leu Ala Arg Arg Ala
 10 15 20 25

gag aag tta ttg gca gaa cag cat cag agg act agc tcg ggc acc tcc 386
 Glu Lys Leu Leu Ala Glu Gln His Gln Arg Thr Ser Ser Gly Thr Ser
 26 31 36 41

att gct ggc aac cca ttc cag gcc aag caa ggc cca tcc caa aat ttc 434
 Ile Ala Gly Asn Pro Phe Gln Ala Lys Gln Gly Pro Ser Gln Asn Phe
 42 47 52 57

cca agg gag tct tgt aag cca gtg agc cat ggt gtc att ttc aag caa 482
 Pro Arg Glu Ser Cys Lys Pro Val Ser His Gly Val Ile Phe Lys Gln
 58 63 68 73

cag aat ctc agt agc tca tct aat gct gac caa aga cct cat gat tcc 530
 Gln Asn Leu Ser Ser Ser Ser Asn Ala Asp Gln Arg Pro His Asp Ser
 74 79 84 89

cac agt ttt cag gca aag gga ata tgg aaa aag cca gaa gaa atg ccc His Ser Phe Gln Ala Lys Gly Ile Trp Lys Lys Pro Glu Glu Met Pro 90 95 100 105	578
aca gcc tgc cca ggc cac agt cca cgt agt caa atg gct ctc act gga Thr Ala Cys Pro Gly His Ser Pro Arg Ser Gln Met Ala Leu Thr Gly 106 111 116 121	626
atc tct cct ccc ttg gca caa agt cct cca gag gtc cct aaa caa cag Ile Ser Pro Pro Leu Ala Gln Ser Pro Pro Glu Val Pro Lys Gln Gln 122 127 132 137	674
ctc ttg agt tat gag tta ggt caa ggt cat gct cag gct tca cct gag Leu Leu Ser Tyr Glu Leu Gly Gln Gly His Ala Gln Ala Ser Pro Glu 138 143 148 153	722
atc agg ttc aca ccc ttt gct aac cca act cat aag cct ctg gcc aaa Ile Arg Phe Thr Pro Phe Ala Asn Pro Thr His Lys Pro Leu Ala Lys 154 159 164 169	770
cca aag agt tcc caa gag aca cca gct cat tcc tct gga cag cct ccc Pro Lys Ser Ser Gln Glu Thr Pro Ala His Ser Ser Gly Gln Pro Pro 170 175 180 185	818
agg gat gct aag tta gag gcc aag aca gca aaa gcc tcc cct tcg ggg Arg Asp Ala Lys Leu Glu Ala Lys Thr Ala Lys Ala Ser Pro Ser Gly 186 191 196 201	866
cag aac att tct tac atc cat tct agc tca gag agt gta acg ccc agg Gln Asn Ile Ser Tyr Ile His Ser Ser Ser Glu Ser Val Thr Pro Arg 202 207 212 217	914
aca gaa gga aga ctc cag cag aag tca ggg tcc tca gtc caa aaa gga Thr Glu Gly Arg Leu Gln Gln Lys Ser Gly Ser Ser Val Gln Lys Gly 218 223 228 233	962
gtg aac tct cag aag gga aag tgc gta agg aac ggc gat cgt ttc cag Val Asn Ser Gln Lys Gly Lys Cys Val Arg Asn Gly Asp Arg Phe Gln 234 239 244 249	1010
gtg ttg att ggg tac aat gcg gaa ctc att gca gtg ttt aag acc ctg Val Leu Ile Gly Tyr Asn Ala Glu Leu Ile Ala Val Phe Lys Thr Leu 250 255 260 265	1058
ccc agc aag aat tat gat cct gac acc aag acg tgg aac ttc agc atg Pro Ser Lys Asn Tyr Asp Pro Asp Thr Lys Thr Trp Asn Phe Ser Met 266 271 276 281	1106
aat gac tat agt gcc ctg atg aaa gca gcc cag agc ctc ccc acg gtc Asn Asp Tyr Ser Ala Leu Met Lys Ala Ala Gln Ser Leu Pro Thr Val 282 287 292 297	1154
aac ctg cag cct ctg gaa tgg gcc tat ggc agc agc gag tca ccc tcc Asn Leu Gln Pro Leu Glu Trp Ala Tyr Gly Ser Ser Glu Ser Pro Ser 298 303 308 313	1202

acc agc agt gag gga cag gcc ggc ctt cca tca gct cca tcc ctt tca	1250
Thr Ser Ser Glu Gly Gln Ala Gly Leu Pro Ser Ala Pro Ser Leu Ser	
314 319 324 329	
ttt gtc aaa ggg cga tgc atg ctc atc tcc agg gcc tac ttc gag gca	1298
Phe Val Lys Gly Arg Cys Met Leu Ile Ser Arg Ala Tyr Phe Glu Ala	
330 335 340 345	
gac atc agt tat tca cag gac ctt att gcg ctt ttt aaa cag atg gat	1346
Asp Ile Ser Tyr Ser Gln Asp Leu Ile Ala Leu Phe Lys Gln Met Asp	
346 351 356 361	
tcc aga aga tat gat gtc aag acc agg aag tgg agc ttt ctc ttg gaa	1394
Ser Arg Arg Tyr Asp Val Lys Thr Arg Lys Trp Ser Phe Leu Leu Glu	
362 367 372 377	
gag cac agt aaa cta att gca aag gtg cgc tgc ctc cca caa gtt cag	1442
Glu His Ser Lys Leu Ile Ala Lys Val Arg Cys Leu Pro Gln Val Gln	
378 383 388 393	
ctg gac cct ctg ccc acg act ctc acc ctg gcg ttt gct tct cag ctc	1490
Leu Asp Pro Leu Pro Thr Thr Leu Thr Leu Ala Phe Ala Ser Gln Leu	
394 399 404 409	
aag aag aca tct ctc agt ctc acg cca gat gtc cca gag gca gac ctt	1538
Lys Lys Thr Ser Leu Ser Leu Thr Pro Asp Val Pro Glu Ala Asp Leu	
410 415 420 425	
tct gaa gtg gac ccc aag ctc gtg tct aat ctg atg ccc ttt cag aga	1586
Ser Glu Val Asp Pro Lys Leu Val Ser Asn Leu Met Pro Phe Gln Arg	
426 431 436 441	
gct gga gtc aat ttt gcc ata gcc aaa gga ggc cgc ctg ctg ctc gct	1634
Ala Gly Val Asn Phe Ala Ile Ala Lys Gly Gly Arg Leu Leu Leu Ala	
442 447 452 457	
gac gac atg ggc ctg ggg aag acc atc caa gcc atc tgc atc gca gcc	1682
Asp Asp Met Gly Leu Gly Lys Thr Ile Gln Ala Ile Cys Ile Ala Ala	
458 463 468 473	
ttt tac cgg aag gag tgg ccg ctc ctg gtg gtg gtg cca tcc tcc gtg	1730
Phe Tyr Arg Lys Glu Trp Pro Leu Leu Val Val Val Pro Ser Ser Val	
474 479 484 489	
cgc ttc acc tgg gag cag gcc ttc ctt cgg tgg ctg cca tct ctg agc	1778
Arg Phe Thr Trp Glu Gln Ala Phe Leu Arg Trp Leu Pro Ser Leu Ser	
490 495 500 505	
cca gat tgc atc aac gtc gtg gtg act ggg aag gac cgc ctg aca gct	1826
Pro Asp Cys Ile Asn Val Val Val Thr Gly Lys Asp Arg Leu Thr Ala	
506 511 516 521	
ggc ctg atc aac att gtc agc ttt gac ctt ctt agc aag ttg gaa aaa	1874
Gly Leu Ile Asn Ile Val Ser Phe Asp Leu Leu Ser Lys Leu Glu Lys	
522 527 532 537	
cag cta aaa acc cct ttt aaa gtt gtc atc att gat gaa tct cac ttc	1922

762	767	772	777	
gct gtg gcc gtg ctg tcc atc acc gct gcc aat atg ggc ctc acc ttc				2642
Ala Val Ala Val Leu Ser Ile Thr Ala Ala Asn Met Gly Leu Thr Phe				
778	783	788	793	
tcc tcg gct gac ctg gtg gtg ttt gct gag ctg ttt tgg aac cca ggg				2690
Ser Ser Ala Asp Leu Val Val Phe Ala Glu Leu Phe Trp Asn Pro Gly				
794	799	804	809	
gtg ctg atc cag gct gag gac cgc gtg cac cgc att gga cag acc agc				2738
Val Leu Ile Gln Ala Glu Asp Arg Val His Arg Ile Gly Gln Thr Ser				
810	815	820	825	
tcc gtg ggc att cac tac ctc gtg gca aag ggc aca gct gat gac tac				2786
Ser Val Gly Ile His Tyr Leu Val Ala Lys Gly Thr Ala Asp Asp Tyr				
826	831	836	841	
ctt tgg ccc ctg att caa gag aag att aaa gtt ctg gca gaa gcc ggg				2834
Leu Trp Pro Leu Ile Gln Glu Lys Ile Lys Val Leu Ala Glu Ala Gly				
842	847	852	857	
ctt tct gag acc aat ttt tca gaa atg aca gaa tcc act gat tac ctc				2882
Leu Ser Glu Thr Asn Phe Ser Glu Met Thr Glu Ser Thr Asp Tyr Leu				
858	863	868	873	
tac aag gac cca aag cag cag aag atc tac gac cta ttc cag aag tcc				2930
Tyr Lys Asp Pro Lys Gln Gln Lys Ile Tyr Asp Leu Phe Gln Lys Ser				
874	879	884	889	
ttt gag aaa gaa gga agt gat atg gag ctc ctg gaa gca gca gag tcc				2978
Phe Glu Lys Glu Gly Ser Asp Met Glu Leu Leu Glu Ala Ala Glu Ser				
890	895	900	905	
ttt gac cca gga agt gct tca gga aca tct gga agt agt tcc cag aac				3026
Phe Asp Pro Gly Ser Ala Ser Gly Thr Ser Gly Ser Ser Ser Gln Asn				
906	911	916	921	
atg gga gac acc ctg gat gaa agc tca ttg aca gcc agt cca cag aag				3074
Met Gly Asp Thr Leu Asp Glu Ser Ser Leu Thr Ala Ser Pro Gln Lys				
922	927	932	937	
aaa agg aga ttt gaa ttt ttt gat aac tgg gac agc ttt acg tct ccc				3122
Lys Arg Arg Phe Glu Phe Phe Asp Asn Trp Asp Ser Phe Thr Ser Pro				
938	943	948	953	
ctg taa aaggggcaaa aagaaaaaaa taaaaagcat tttaaaatca tggaattgaa				3178
Leu *				
954				
ataaaaataat gtatttttggt ttaaaaaaaa aaaaaaa				3215

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<211> 879

<212> DNA
 <213> Homo sapiens

<220>
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 <222> (366)..(827)

<400> 87

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ggccagggta tgcgaggcct tggaggccag catgcagtct aggatgaggc ctccctacctt 180
cagcctgcct gagggccagg agctggaggg aggcgagtga aggcccttct tcccgtgcct 240
gcagtaatgg ctcccaggac acctttgaag catgttacag cggcacgtcc acaccttctt 300
tccatggctc ccactgcagc ggcagcgacc acagcagtct gggcttggag cagttacagg 360
attac      atg gtc acg ttg cgg agt aag ctg ggg ccc ctc gag atc cag 407
            Met Val Thr Leu Arg Ser Lys Leu Gly Pro Leu Glu Ile Gln
            1             5             10

cag ttt gcg atg ctg ctg cgg gag tac cgg ctg ggg ctg ccc atc cag 455
Gln Phe Ala Met Leu Leu Arg Glu Tyr Arg Leu Gly Leu Pro Ile Gln
15             20             25             30

gac tat tgc aca ggc ctg ctg aag ctc tac gga gac cgg cgc aag ttc 503
Asp Tyr Cys Thr Gly Leu Leu Lys Leu Tyr Gly Asp Arg Arg Lys Phe
31             36             41             46

ctc ctc ctt ggg atg cgg ccc ttc atc ccg gac cag gac atc ggc tac 551
Leu Leu Leu Gly Met Arg Pro Phe Ile Pro Asp Gln Asp Ile Gly Tyr
47             52             57             62

ttc gag ggc ttc ctg gag ggc gtg ggc atc cgc gag ggc ggc atc ctc 599
Phe Glu Gly Phe Leu Glu Gly Val Gly Ile Arg Glu Gly Gly Ile Leu
63             68             73             78

act gac agc ttc ggc cgc atc aag cgc agc atg agc tcc acg tcg gcc 647
Thr Asp Ser Phe Gly Arg Ile Lys Arg Ser Met Ser Ser Thr Ser Ala
79             84             89             94

tcc gca gtg cgc agc tac gat ggc gcg gcg cag cgg ccc gag gca cag 695
Ser Ala Val Arg Ser Tyr Asp Gly Ala Ala Gln Arg Pro Glu Ala Gln
95             100            105            110

gcc ttc cac cgg ctg ctg gct gac atc acg cac gac atc gag gcg ctg 743
Ala Phe His Arg Leu Leu Ala Asp Ile Thr His Asp Ile Glu Ala Leu
111            116            121            126

gcc ccc gat gac gac gac gac gag gat gag ccc cgg ggt cac agg 791
Ala Pro Asp Asp Asp Asp Asp Asp Glu Asp Glu Pro Arg Gly His Arg
127            132            137            142

ggc ggg acc gac ccc gca gaa gac aac tac ctg tag ccac cgccctgcg 841

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Gly Gly Thr Asp Pro Ala Glu Asp Asn Tyr Leu *
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879

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 <222> (64)..(3810)

<400> 88

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 Met Lys Glu Pro Ala Ala Cys Ser Val Arg Gly Gly Thr Arg Leu
 1 5 10

ccg gcg gtg ggt cta gct ggg gga ggt cgg gcc atg ctg gtg ggc cag 156
 Pro Ala Val Gly Leu Ala Gly Gly Gly Arg Ala Met Leu Val Gly Gln
 16 21 26 31

ggc gcg ggg ctg ctg ggg ccc gcg gtg gtc acc gcc gcg gtg gtg ctg 204
 Gly Ala Gly Leu Leu Gly Pro Ala Val Val Thr Ala Ala Val Val Leu
 32 37 42 47

ctg ctg agc ggc gtg ggg ccg gcg cac ggc tgc gag gac atc gtg gtg 252
 Leu Leu Ser Gly Val Gly Pro Ala His Gly Ser Glu Asp Ile Val Val
 48 53 58 63

ggc tgc ggt ggc ttc gtc aag tgc gac gtg gag atc aac tac tct ctc 300
 Gly Cys Gly Gly Phe Val Lys Ser Asp Val Glu Ile Asn Tyr Ser Leu
 64 69 74 79

atc gag ata aag ctg tac acc aag cat ggg act ttg aaa tac cag aca 348
 Ile Glu Ile Lys Leu Tyr Thr Lys His Gly Thr Leu Lys Tyr Gln Thr
 80 85 90 95

gac tgt gcc cct aat aat ggt tac ttt atg atc cct ttg tat gat aag 396
 Asp Cys Ala Pro Asn Asn Gly Tyr Phe Met Ile Pro Leu Tyr Asp Lys
 96 101 106 111

ggg gat ttc att ctg aag att gag cct ccc cta ggg tgg agt ttt gag 444
 Gly Asp Phe Ile Leu Lys Ile Glu Pro Pro Leu Gly Trp Ser Phe Glu
 112 117 122 127

ccg acg acc gtg gag ctc cat gtg gat gga gtc agt gac atc tgc aca 492
 Pro Thr Thr Val Glu Leu His Val Asp Gly Val Ser Asp Ile Cys Thr
 128 133 138 / 143

aag ggt ggg gac atc aac ttt gtc ttc act ggg ttc tct gtg aat ggc 540

Lys Gly Gly Asp Ile Asn Phe Val Phe Thr Gly Phe Ser Val Asn Gly	
144 149 154 159	
aag gtc ctc agc aaa ggg cag ccc ctg ggt cct gcg gga gtt cag gtg	588
Lys Val Leu Ser Lys Gly Gln Pro Leu Gly Pro Ala Gly Val Gln Val	
160 165 170 175	
tct ctg aga aac act ggg acc gaa gca aag atc cag tcc aca gtt aca	636
Ser Leu Arg Asn Thr Gly Thr Glu Ala Lys Ile Gln Ser Thr Val Thr	
176 181 186 191	
cag cct ggc gga aag ttt gca ttt ttt aaa gtt ctg cct gga gat tat	684
Gln Pro Gly Gly Lys Phe Ala Phe Phe Lys Val Leu Pro Gly Asp Tyr	
192 197 202 207	
gaa atc ctc gca act cat cca acc tgg gcg ttg aaa gag gca agc acc	732
Glu Ile Leu Ala Thr His Pro Thr Trp Ala Leu Lys Glu Ala Ser Thr	
208 213 218 223	
aca gtg cgt gta acc aac tcc aat gcc aat gcg gcc agt ccc ctc ata	780
Thr Val Arg Val Thr Asn Ser Asn Ala Asn Ala Ala Ser Pro Leu Ile	
224 229 234 239	
gtt gct ggc tac aat gtg tct ggc tct gtc cga agt gat ggg gag ccc	828
Val Ala Gly Tyr Asn Val Ser Gly Ser Val Arg Ser Asp Gly Glu Pro	
240 245 250 255	
atg aaa ggc gtg aag ttt ctt ctc ttt tct tct tta gta act aaa gag	876
Met Lys Gly Val Lys Phe Leu Leu Phe Ser Ser Leu Val Thr Lys Glu	
256 261 266 271	
gat gtc ctg ggc tgc aat gtc tca cca gtg cct ggg ttc cag ccc caa	924
Asp Val Leu Gly Cys Asn Val Ser Pro Val Pro Gly Phe Gln Pro Gln	
272 277 282 287	
gac gag agt ctg gtg tat ttg tgc tac acg gtc tcc aga gaa gat ggc	972
Asp Glu Ser Leu Val Tyr Leu Cys Tyr Thr Val Ser Arg Glu Asp Gly	
288 293 298 303	
tcg ttc tct ttc tat tcc ttg cca agt ggg ggc tac act gtg att ccg	1020
Ser Phe Ser Phe Tyr Ser Leu Pro Ser Gly Gly Tyr Thr Val Ile Pro	
304 309 314 319	
ttc tat cga ggg gag agg att acc ttt gat gtg gcg cct tcc aga ctt	1068
Phe Tyr Arg Gly Glu Arg Ile Thr Phe Asp Val Ala Pro Ser Arg Leu	
320 325 330 335	
gac ttc aca gtg gag cat gac agc ttg aaa atc gag ccc gtg ttc cac	1116
Asp Phe Thr Val Glu His Asp Ser Leu Lys Ile Glu Pro Val Phe His	
336 341 346 351	
gtc atg gga ttc tcc gtc acc ggg agg gtc ttg aac gga ccc gaa gga	1164
Val Met Gly Phe Ser Val Thr Gly Arg Val Leu Asn Gly Pro Glu Gly	
352 357 362 367	
gat ggt gtt cca gaa gca gta gtc acc ctg aat aac caa atc aaa gtt	1212
Asp Gly Val Pro Glu Ala Val Val Thr Leu Asn Asn Gln Ile Lys Val	

gca gtt gag ttc agg cag acg ggc tac atg ctg aga tgt tcc ctg tct	1932
Ala Val Glu Phe Arg Gln Thr Gly Tyr Met Leu Arg Cys Ser Leu Ser	
608 613 618 623	
cac gcc atc act ctg gaa ttt tat cag gat gga aat ggg cgt gag aat	1980
His Ala Ile Thr Leu Glu Phe Tyr Gln Asp Gly Asn Gly Arg Glu Asn	
624 629 634 639	
gtg ggg att tat aac ctc tcc aaa gga gtc aac cga ttc tgc ctg tcc	2028
Val Gly Ile Tyr Asn Leu Ser Lys Gly Val Asn Arg Phe Cys Leu Ser	
640 645 650 655	
aag cct ggt gtg tac aaa gtg acc cct cgc tcc tgc cac cgg ttt gag	2076
Lys Pro Gly Val Tyr Lys Val Thr Pro Arg Ser Cys His Arg Phe Glu	
656 661 666 671	
caa gcg ttc tat atc tat gac acg tct tca cct agt atc ttg aca ttg	2124
Gln Ala Phe Tyr Ile Tyr Asp Thr Ser Ser Pro Ser Ile Leu Thr Leu	
672 677 682 687	
aca gcc att cgc cac cat gtc ctt gga act atc acc acc gac aaa atg	2172
Thr Ala Ile Arg His His Val Leu Gly Thr Ile Thr Thr Asp Lys Met	
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